Canadian Railway and Marine World

June, 1920

Railway Rates for Carriage of Mails Recommended to be Largely Increased.

The Dominion Government, on Mar. 7, 1917, passed the following order in council:—The committee of the Privy Council have had before them a report, dated Feb. 15, 1917, from the Postmaster General, submitting that the different railway companies of Canada have carried the mails since Feb. 1, 1913, at the following rates:

For full postal car	16c a mile
For half postal car	9c a mile
For baggage car service over 30 ft., space	16c a mile
For baggage car service, 15 to 30 ft. space	9c a mile
For baggage car service less than 15 ft. space	4c a mile
Special mail train ordered by Post Office Department	$1.25 a mile
Special mail train when other cars are attached by the railway company	$1.00 a mile

It is claimed by the Canadian Pacific and Grand Trunk Railways that these rates are inadequate, and the Minister therefore recommends that the question of remuneration to be paid the railway companies be referred to the Board of Railway Commissioners to determine as to the accuracy or inaccuracy of the claims made by the railway companies, and, if it is found that the present rates are inadequate, to determine, as the result of evidence to be submitted by both parties, that is the Post Office Department and the different railway companies interested, what would be a fair rate of payment for the service. The committee concur in the foregoing recommendation and submit the same for approval.

The hearing of the case by the Board of Railway Commissioners was postponed from time to time, at the Post Office Department's request, and it was not until Mar. 18, 1919, that it was heard at Ottawa, the P. O. Department's counsel having submitted previously that no conditions had arisen which would warrant any increased payments to the railways. Commissioner S. J. McLean made a report, under the reference, on July 5, 1919, but the Post Office Department declined to make it public, on the ground that it was before the government for consideration. However, at the Dominion Parliament's recent session, Jacques Bureau, M.P. for Three Rivers, Que., moved that the report be submitted to the House of Commons and it was brought down accordingly. Commissioner McLean's report, referred to above, is as follows:—

The rates referred to in the reference by the Privy Council were put into force for one year and have been continued from year to year. The railways contend that they in no sense agreed to these rates, but that they had made protests from time to time. There is some uncertainty as to how the basis for full cars was arrived at in the first instance. It was stated that information had been obtained from F. P. Gutelius as to operating costs on the Intercolonial Ry., and that the rates had been built up, allowing an operating ratio of approximately 60%. It was stated, however, by the P. O. department's counsel that the estimate of basic cost per mail car mile, submitted by Mr. Gutelius, had been withdrawn by him subsequently. It was recognized at the hearing that costs had increased and the submission of the department was, in substance, that it was justifiable to consider this increase of cost, and to add thereto such additional amount, by way of operating ratio, as would give a reasonable profit on cost. There is no difference between the parties as to the car mile being the proper unit of charge.

Statistical material bearing on the apportionment of costs was submitted at the hearing by the Canadian Pacific, Grand Trunk, and the Toronto, Hamilton & Buffalo Railways. W. J. Moule, Assistant Comptroller, Canadian Pacific Ry., made an apportionment of cost, involving in the first instance the separation of freight and passenger costs, and allowing thereafter for certain items of expense which he considered did not enter into the mail service in the same ratio as they did into the passenger service, and the allocation of cost on the basis of passenger train mileage. About 50% of the cost so computed was stated to be on the basis of items which could be directly allocated; the remainder was on a basis admittedly more or less arbitrary. Reference was made by Mr. Moule to the question of mail pay which is being brought before the Interstate Commerce Commission by the United States Post Office Department. That department has prepared a form of subdivisions of costs, and it was stated by Mr. Moule that his methods did not make more than a fraction of 1% of difference on the total as compared with the method prepared by the U.S. Post Office Department. The method of subdivisions, as made use of by Mr. Moule, is in summary form as follows:

Actual cost:—Train locomotive men, fuel for train locomotives, trainman's wages, and great bulk of train supplies and wages.

Yard expenses:—Statements from heads of different divisions as to the different proportions.

Maintenance of way and structures, divided on basis of expenses.

Locomotive repairs and renewals:—Divided on straight locomotive basis (this is in accordance with general practice; also made study of typical passenger and freight locomotives, and found locomotive cost per mile practically identical).

Maintenance of equipment:—(This is a general heading). Under this heading there are here concerned items of superintendence, shop, machinery, and other items under that heading. Apportioned on the basis that the previously divided expenses under maintenance bore to the total, what is commonly known as overhead basis.

Traffic expenses, worked out on a test for one month by him, giving 57.77% passenger.

Dispatching trains, divided on a train mile basis.

Items under Transportation:—Superintendence and station employes, station supplies and expenses, miscellaneous accounts, e.g., drawbridge operation, telegraph and telephone operation, operating floating equipment, other expenses, operating joint tracks and facilities, damage to property, damage to live stock on right of way, injuries to persons. Above apportioned on the basis which the previously divided expenses for passenger bore to the total expenses of those accounts. This is the I.C.C. basis.

General expenses, apportioned on the basis of how the other accounts were divided between passenger and freight as an overhead or supervisory expense under all previous items.

In addition to asking for increases in mail car rates, there are the following items:—terminal charges, switching, cleaning, repairs, for full mail storage cars $4 a round trip; for apartment cars, 30 ft., $2 a round trip; for baggage cars, 15 ft., $1 a round trip. In the proposition made by the railways, it is provided that if the railways make use of the returning (empty) storage or baggage car space, credit is to be allowed the P. O. Department for the return mileage, and terminal charge; that is, the payment is to be for the loaded trip only. The evidence as developed was not sufficiently detailed to show that there were services commensurate with these costs, or to warrant the conclusion that additional terminal charges as asked for were justified.

The method used by the Canadian Pacific in its analysis of costs was followed by the Grand Trunk and may, therefore, be set out in summary form as typical. In the first instance, the Canadian Pacific submitted figures dealing with apportionment of cost for the year ended June 30, 1918. At the hearing, additional figures were submitted for the period from Aug. 1, 1918, to Feb. 1, 1919. In support of these figures being taken as affording a more exact measure of existing conditions, it was pointed out that the wage increases under the McAdoo award had become effective from Aug. 1, 1918, and added greatly to operating costs. On the basis of apportionment made by Mr. Moule, passenger car mile cost for the period Aug. 1, 1918, to Feb. 1, 1919, was 33.10c. From this he made certain deductions. In the case of baggage and express cars, it was found that the cost for maintenance was one-third less than for passenger cars. In the case of train supplies and expenses an arbitrary deduction of one half was made. These deductions amount to 2.52c a car mile, giving a computation of 30.58c a mail-car mile. To this figure was added a ratio for taxes, fixed charges and dividends, and a margin of 2% on the common stock. These items amount to 8.93c, which would give a total of 39.51c. If the 2% allowance above referred to is left out, it would give a figure of 38.25c. The general contention of Mr. Moule, the C.P.R. statistical expert, was that all the services in connection with passenger business should be so considered as in effect, since advantage was being taken of the whole passenger service and organization, by the mail service. It was contended for the P. O. Department that there were various items not properly allocatable to the mail service and

that these should be deducted. While objecting to the deductions proposed, he stated that station services, station supplies and some allowance for maintenance of buildings would take off 6.07c, leaving 33.48c, with a proper charge for a margin on common stock as included, or 32.18c if this is not included.

The Quebec Central Ry., in a written submission, stated it had an actual cost of 30.76c a car-mile, and overhead charges of 10.86c, giving a total of 41.44c. The Toronto, Hamilton & Buffalo Ry. said it had direct costs of 47.28c a car-mile. The services on the T., H & B. are in baggage cars entirely, and while its figures are referred to, it does not appear that they can be taken as characteristic.

Reference has already been made to the pending investigation into mail-car payment in the U.S. In a written submission, prior to the hearing, various railways represented that the payments they were then receiving were inadequate, and that in fact other services had to bear, under existing conditions, part of the cost of carrying the mails. Comparisons were made with the rates which were paid in the U.S., and it was pointed out that the Canadian rates were much lower. It does not appear that a finding based on existing U.S. rates can be made. It was stated by counsel for the P. O. Department, as by the Comptroller of Railway Mail Service, that the services performed by railways in Canada and in the United States are not on all fours; and in some particulars this was admitted by counsel for the railways, certain off line delivery service performed by the railways being referred to in this connection. Putting the foregoing figures in summary form the result is—

Passenger car-mile cost	33.10c
Deduct lesser charges of maintenance, train supplies and expenses	2.52c
Mail car-mile cost	30.58c
Ratio added for taxes, fixed charges, dividends and margin of 2% on common stock	8.93c
	39.51c
If margin of 2% on common stock deducted	1.26c
	38.25c
Deducting station services, station supplies and some allowance for maintenance of building (such deduction objected to by railway)	6.07c
	32.18c

The Grand Trunk figures for the year ended June, 1918, before the increase under the McAdoo award became effective, showed a computed car-mile cost of 25.48c, and adding to this 3c for overhead charges the result would be 28.48c a car-mile.

The criticism directed against the method of computation used by Mr. Moule, both by counsel for the P. O. Department and by his statistical expert, J. L. Payne, Comptroller of Railway Statistics, was that the element of individual judgment bulked largely in making the allocation. It cannot be said that exception was taken to this, as a principle, by the railways, the differences were as to details. It was frankly admitted by counsel for the P. O. Department that there were many costs common both to passenger and to mail service. It was contended for the P. O. Department that while the mail-car operation was mixed in with passenger train operation, there were certain costs attributable to passenger car operation which did not properly enter into the mail-car service; and it was further contended that the proper way of approaching the matter was to deal with it as if the mail service were handled entirely on mail trains, to ascertain the costs properly applicable thereto, and then make the necessary computations on the car-mile basis. As was pointed out by Mr. Payne, when cross-examined, there is not sufficient business for separate mail trains and, therefore, computations as to costs based on mail-train service proceed from a purely theoretical assumption. Further, he expressed the opinion that operation on a mail train basis would be both unnecessary and impracticable. While in view of what has been stated it does not seem that a computation in regard to a method of service that is not used can be helpful in arriving at a result of value, it may be pointed out that the items of cost which would be deducted in computing on a mail-train basis amount would mean a reduction from 33.10c for passenger mile cost to 24.29c for computed mail-car mile cost on a train movement basis.

Counsel for the P. O. Department had before him, before the hearing, a C.P.R. statement for the year ended June 30, 1918. While the statement for the period Aug. 1, 1918, to Feb. 1, 1919, differed as to totals, this does not change the situation from the standpoint of criticism of the principle involved. The mail-car mile cost as computed for the year ended June, 1918, was 24.83c. For the period Aug., 1918, to Feb. 1, 1919, it was 30.58c, or an increase of 23%. Against this must be remembered the large increases in wage and material costs.

The evidence given on behalf of the P. O. Department by the Comptroller of Railway Statistics, emphasized the element of judgment as a factor of importance in the allocation of costs. From the total cost of $36,617,000, which was allocated to passenger business by the C.P.R., including under this mail-car service for the year ended June, 1918, Mr. Payne made computations to the effect that there should be deductions amounting to $6,803,719. He considered that these should be deducted, before making the various divisions intended, to arrive at mail-car cost. The net effect is that he claimed there should be a deduction of 18.5%.

In connection with the original computations whereby a 16c figure per car-mile was arrived at, it is suggested that a basis of 11½c was taken, and that approximately 40% was added to this, to take care of general charges and an assumed element of profit. That is to say, there was an operating ratio of 60% provided for. Mr. Payne, in his evidence, considered that in order to provide for overhead, etc., an operating ratio of 75% was reasonable. For the years 1914-1917, inclusive, the operating ratio for Canadian railways averaged 72.1%. If Mr. Payne's deductions, averaging 18.5%, are made, the C.P.R.'s cost figure for mail-car service is reduced to 24.92c. For the theoretical mail-train service, the computed cost figure is 24.29c a car mile. At an operating ratio of 75%, the first computation would give a reasonable charge of 33.22c a car mile. On the same basis, the second computation which shows the extreme of what is claimed, but which for reasons set out is not a practical basis, the 75% ratio would give a reasonable charge of 32.38c a car mile. If a 60% ratio is taken, the figures would be 41.53c and 40.48c respectively. On the average of 1914-1917, the resultant figures would be 34.56c and 33.68c respectively.

Giving the consideration to the averages involved, and the element of judgment concerned in dealing with the question as to the proper participation of the mail service in general costs, it would appear not unreasonable that the rate accepted by this board for the kindred express service, in the general express judgment should be adopted, that is, a rate of 34.7c for a full mail-car mile. It would appear also not unreasonable that the charges for the other services set out in the order in council as contained in the reference to the board, should be increased in each case by the same percentage as the 34.7c rate represents over the 15c rate.

On August 29, 1919, Commissioner McLean made the following addition to his report:—Since the draft report was prepared, the matter has been before the other members of the board, who, in agreeing, are of the opinion that the 34.7c rate should be the maximum rate, and subject to all bonus or statutory deductions.

The report is still before the government and up to the time of writing (May 19) no intimation had been given of what action will be taken, though the Postmaster General, as one excuse for raising newspaper postage, said the railways will have to be paid much higher compensation than at present.

Electrification on Paulista Railway in Brazil.

The Paulista Ry. has given a contract to the International General Electric Co. for the electrification of its line between Jundiahy and Campinas, Brazil, a distance of 45 kilometers, or about 28 miles. As the road is of double track construction, the total mileage, including switches and extra track, is about 76 miles. The project anticipates further extensions, amounting to about 100 additional miles, which may eventually bring the total electrification up to 128 miles, extending between Jundiahy and San Carlos.

The equipment to be supplied by the contractors will consist of 12 locomotives, 8 freight and 4 passenger, material for the transmission line and substation, and a 3,000 volt overhead, of the twin-catenary type construction. The locomotives will be of the geared type, 3,000 volt direct current. The freight locomotives will weigh 100 tons each, all weight on driving axles, and the passenger locomotives 120 tons, equipped with 2 axle guiding trucks at each end. They will be built at the General Electric Co.'s works at Erie, Pa. All of them will be equipped with regenerative braking apparatus. The design of the new equipment will parallel closely that of the Chicago, Milwaukee & St. Paul Ry. electrification, and the locomotives will be almost the duplicates of those used on the Butte, Anaconda & Pacific Ry., except for slightly increased weight and the additional of regenerative braking. Power for the operation of the lines will be supplied by the Sao Paulo Light & Power Co. at 88,000 volts, 60 cycles.

The contract amounts to nearly $2,000,000, and it is expected that it will be completed by July, 1921.

Sleeping and Parlor Car Rates.—The increases in sleeping and parlor car rates which went into force on May 1, between points in the United States, and on international traffic between Canada and the U.S., full particulars of which were given in Canadian Railway and Marine World for May, pg. 249, also went into force between points in Canada on May 15.

Canadian Pacific Railway Co's Annual Meeting.

The C.P.R. Co.'s shareholders' 39th annual meeting was held at Montreal, May 5, Lord Shaughnessy, Chairman of the company, presiding. E. W. Beatty, President, in moving the adoption of the annual report for the calendar year 1919, as published in Canadian Railway and Marine World for May, said:—The annual report and statements attached, which have been in your possession for some time, reflect very vividly the situation prevailing generally in respect of increased costs of operation. Notwithstanding that the company's gross earnings were the largest in its history, and exceeded those of 1918 by $19,391,362, the net earnings were less by $1,569,351. The large increase in working expenses of $20,960,713, following as it does an increase of $17,191,993 in the working expenses during 1918, or a total increase in 1919 over 1917 of $38,152,706, is a striking example of the effect of the increased cost of wages and material in the operations of a company, even one conservatively and economically administered as are the affairs of your company. While it is a matter of great gratification that, even with these exceptional costs, your company has been able during the past two years to earn its fixed charges and usual dividends, and very moderate surpluses, it is nevertheless important that the relation between earnings and expenses should now receive the most careful consideration. The results of the operations during the past two years show an upward trend in costs, which even extensive increases in gross earnings and effective operating economies, due to heavier loading, larger power and consequent reduced train mileage, have not equalized.

For the past 16 years the freight and passenger rates of all Canadian railways have been subject to review or have been fixed by the Board of Railway Commissioners. The rates have been readjusted from time to time, first being lowered and then increased, but the extent of the increase has not equalled the increased costs which have recently been forced upon all companies, and reductions in which cannot with any confidence be predicted at this time. During the fiscal year ended June, 1914, the working expenses of your company, with a mileage somewhat less than the operated mileage of last year, were $87,388,000, while for 1919 they had climbed to practically $144,000,000, an increase of 64%. Within that period, increases of nominally 40% in freight rates, and 15% in passenger rates have been authorized by the Board of Railway Commissioners. The actual increases owing to the adjustment of rates made by the board were in fact 30% in freight rates and 10% in passenger rates. The result, therefore, has been that during the past five years the percentage increase in operating expenses was double the percentage increase in tolls accorded to the companies.

Owing to the parity of conditions existing between the United States and Canada, the Canadian roads were forced, during the war, to put into effect the high scales made effective under government control of the U.S. roads and they were also compelled to continue operating under tariffs of tolls substantially the same as those in force in the U.S. These tariffs were entirely inadequate, as results in the U.S. clearly demonstrated. By legislation recently enacted, the U.S. carriers are assured of rates which will return a fixed percentage on the value of the undertakings used in the public service, which will mean a reconsideration of, and increase in, the rates now current in that country. No doubt the necessity of rate adjustments in Canada will be given earnest consideration by the government and the Board of Railway Commissioners. While it is not my purpose to anticipate any action which may be taken, it is only proper, I think, to say that a readjustment is amply warranted, both on the ground of the value of the service rendered by the carriers and the cost to them of performing such service.

It is further to be remembered, and I do not anticipate that it will be forgotten that the value of any enterprise to the people it serves depends greatly upon its ability to progress and develop, and on the maintenance of a high credit, without which such development cannot take place. Waste, extragagance and improvidence must be discouraged, but I can imagine nothing more detrimental to Canada than that its railway systems should be unable to keep pace in their own development with the progress of the country, and that they should be unable to aid that progress by the expansion of facilities, the construction of necessary new lines and by meeting the increasing demands of the public in the way of efficiency and comfort in service. Based upon accepted principles in other countries government compensation due to transportation and other public service corporations, the net earnings of your company have always yielded a moderate return upon the capital actually invested in the enterprise. The railway net earnings of the company for 1919 represent only a return of 4% on the actual cash invested in the railway itself. The operations for 1919, after the payment of fixed charges and the usual preference and common stock dividends, showed a nominal surplus of $844,249, which has been placed in reserve to meet the special taxation imposed by the Dominion Government, which special taxation ended in 1919. The company's fixed charges are low, the interest on the preference stock is equally low, and the dividend of 7% payable on common stock from railway earnings is moderate. A factor which seems to be lost sight of in these discussions of the relations between expenses and revenues, is the absolute necessity of reasonable surpluses, in the case of any corporation conducting an enterprise as extensive as that of your company. The company's gross earnings for the year exceeded $176,000,000 and the surplus, after deduction of the moderate fixed charges and dividends, only amounted to less than half of 1% of these earnings. Considering the importance of reasonable provision for working capital annually from the operations of the company if its high credit and ability to progress are to be maintained, it will readily be appreciated that the revenues during the past two years have been, to say the least, inadequate.

In the discussion which has taken place as to the desirability, or otherwise, of increased rates and therefore increased revenues to the Canadian railways, two theories are publicly mentioned. The first, that rates should be increased but that any surplus earnings thereby accruing to your company should be taken back through the medium of special taxes, and the second, that rates should not be increased but that the Government Railways' deficits, if such occur, should be met out of the general revenues of the country. Both theories are, in my opinion, unsound. Rates should be established which represent a fair return for the service rendered, and if, by efficiency and economy, and the character and extent of its equipment and facilities, a company can render its operations under such rates profitable, there is no warrant for the confiscation of those profits, nor can there be anything but doubtful honesty in the proposal that one company's revenue accruing to it from service actually rendered by it, and well performed, should be taken from it to supplement the revenue of a competitor whose operations do not show favorable results. It is scarcely necessary for me to say that the fairness, or otherwise, of any rate basis is not necessarily measured by the strength or resources of a company, or by the lack of them.

The second theory, that rates should not be increased, but that any deficits should be met from the general revenues of the country, is unsound economically and unfair alike to the government-owned and other railways. It is obvious that any system which permits services to shippers and others to be performed at unreasonably low rates is discriminatory in their favor, and discriminatory against the public, whose taxes are increased as a contribution to those who use railway facilities. In my opinion the rates in this country should be determined, having regard to the cost and value of the services rendered by the companies, and to the legitimate needs of the companies, if they are to meet the transportation requirements of the country. No doubt a question so important and far reaching in its effect will be given the careful consideration to which it is entitled, by those in authority and empowered to deal with it. I may say, however, that this company's properties are in excellent condition, and at no time in its history has it been better equipped to perform its important public services or to play its full part in the advancement of the transportation future of this country.

Irrigation.—In the annual report reference has been made to the company's irrigation project in Alberta, the construction of which was undertaken some years ago, and in the earlier progress of which some difficulties were met. The project has now become firmly established, and the success has been so pronounced during the past few years that further reference to this important undertaking is, I think, warranted. An area of 643,526 acres has been brought under irrigation, through the medium of 3,969 miles of irrigation canals and distributing ditches. Of this area 301,382 acres of irrigable land have been sold at an average price of $38.18 an acre. There is still for sale, within the block, 342,144 acres of irrigable land, for which there is at present a very active demand. During the period from the commencement of construction to Dec. 31, 1919, the company has expended in connection with the construction and maintenance of these irrigation works $15,186,348 and in their operation $1,761,268. The introduction of irrigation in Southern Alberta has made it possible to successfully produce, on irrigated land, splendid crops

of alfalfa, corn, small fruits and vegetables, which are not produced with equal success under the dry farming conditions. Careful statistics, covering 11 years, indicate remarkable increases in ordinary crops grown on irrigated land, over those produced on dry land and the wisdom of the decision to undertake this extensive project has been more than justified. We are amply warranted in the belief that the irrigation block will ultimately be a closely settled, intensively cultivated, and a considerable traffic producing area tributary to the company's lines in Southern Alberta. The success of the company's undertaking in this respect, combined with the obvious necessities of that portion of the country will, I hope, lead to the extension of irrigation projects under the auspices of the Dominion or provincial governments, which will, in the end, render the danger of crop failure in these districts practically negligible.

Rolling Stock.—As indicated in the annual report your directors thought it necessary to make provision for the construction of necessary additions to your company's rolling stock. Since the report has been issued arrangements have been concluded for an equipment trust agreement, under which the payments for such equipment are spread over 12 years. The actual amount of the equipment trust issue is $12,000,000. By reason of the conditions existing at the time the transaction was concluded highly favorable interest rates were secured.

Directors.—Since the issuance of the annual report for 1919 your board has considered it desirable to apply for an amendment to the company's charter, which will permit the increase of the number of directors from 15 to 18, should that at any time appear necessary. The statute is purely empowering, and the amending bylaw will be submitted for your approval, in the event of it being considered advisable to increase the directorate. The purpose of any increase will, of course, be to secure a large representation on the board from those portions of Canada in which the company's interests are specially important.

Immigration.—I look forward to immigration to Canada on a large scale and, while a period of retrenchment and financial conservation may conceivably be the part of wisdom, your directors have the same implicit faith in the future growth and prosperity of the country that they have always had, and also the same confidence in the ability of your company to play an important part in its development and prosperity.

The report was unanimously adopted.

Nakusp & Slocan Ry.—A lease to the C.P.R. Co. from the N. & S. Ry. was approved. The lease demises to the C.P.R. Co. for 99 years, the N. & S. Ry. Co.'s railway and undertaking in British Columbia from Nakusp to Three Forks with branches from Three Forks to Sandon, and from Three Forks to Retallack near Whitewater Creek, a distance of 48.47 miles, and all such branches and additions to those railways as the N. & S. Ry. Co. is now or may be hereafter authorized to construct, together with other appurtenances, at an annual rental equal to the interest payable on the outstanding securities issued, or which may be hereafter issued, by the N. & S. Ry. Co. with the C.P.R.'s consent, the total of all such securities unpaid or unredeemed not exceeding at any time $25,000 a mile of the said demised railways, and to bear interest at a rate not exceeding 5% per annum, payable half-yearly, the payment of such interest being guaranteed by the C.P.R. Co.

Branch Line Construction.—It was resolved that whereas it is, in the directors' view, expedient that the following branch lines, and extensions of branch lines, be built in the near future, viz.:

Archive-Wymark Branch, 25 miles.

Rosetown Southerly Branch, 45 miles.

An extension of the Weyburn-Lethbridge Branch, from Altawan to Manyberries, 35 miles.

An extension of the Consul southeasterly section of the Moose Jaw Southwesterly Branch, of which 35 miles have been previously authorized as from Vidora easterly, mile 35 to 60.

An extension of the Moose Jaw Southwesterly Branch from Assiniboia southwesterly, 30 miles.

Leader Southerly Branch, 50 miles.

Duchess or Rosemary Northerly Branch, 34 miles.

Cutknife to Whitford Lake Branch, 40 miles.

An extension of the Swift Current Northwesterly Branch, from Empress northwesterly, 20 miles.

An extension of the Swift Current Northwesterly Branch from Sedgewick to Vegreville, 54 miles,

It is therefore resolved that the directors are authorized to proceed with the construction of the said branch lines, and extensions of branch lines, when in their opinion conditions warrant, and after statutory authority, where any be necessary, shall have been obtained therefor, and that to aid in the construction and equipment of the said branch lines and extensions of branch lines, the directors are hereby authorized to issue and dispose of consolidated debenture stock to such an amount as they may deem expedient, but not exceeding in respect of any of the said lines the amount which the company is or may be empowered by statute to issue.

Freight and Passenger Tariffs.—Bylaw 91 was repealed and the following substituted therefor:—That the Vice President in charge of Traffic, the Freight Traffic Manager, the Assistant Freight Traffic Manager, Eastern Lines, and the Assistant Freight Traffic Manager, Western Lines, are, and each of them is authorized, from time to time, to prepare and issue tariffs of the tolls to be charged, as provided by the Railway Act and amendments thereto, for the carriage of freight traffic upon the railway and vessels owned or operated by the company, and any portion thereof; and the Passenger Traffic Manager is authorized in like manner to prepare and issue tariffs of the tolls to be charged, as above provided, for the carriage of passenger traffic upon the said railways and any portion thereof, and upon the said vessels.

Directors.—Sir John C. Eaton, Grant Hall, Sir Vincent Meredith, and Sir Augustus M. Nanton, whose terms of office had expired, were re-elected directors for four years.

Officers, Etc.—At a meeting of the board held immediately after the shareholders' meeting, Lord Shaughnessy was re-elected Chairman of the company, E. W. Beatty, President, and Grant Hall, Vice President, and the following were appointed the executive committee:—R. B. Angus, E. W. Beatty, Grant Hall, Sir Herbert S. Holt, Sir Edmund B. Osler, Lord Shaughnessy.

The Canadian National Ex. Co. has opened an office at Bethany, Man.

Ontario Land Grant to Grand Trunk Pacific Ry.

The Minister of Lands, in answering questions in the Ontario Legislature recently, stated that no action had been taken by the Government to reserve for the province lands awarded to the Grand Trunk Pacific Ry. under 4 Edward 7, chap. 18, sec. 2, which now appear to be the property of the province, but that it is contemplated to take action to recover the subsidy, and the lands, or value thereof, as provided for under the section, which is as follows:—"In case the Government of Canada shall at any time take over at a valuation the line of the G.T.P. Ry. Co., mentioned in sec. 1 of this act, the amount of cash subsidy and the amount or value of the land grant both mentioned in sec. 1 of this act, and which shall have been received by the said G. T. P. Ry. Co., shall be forthwith repaid by the said G.T.P. Ry. Co. to the Treasurer of the Province of Ontario; and an agreement shall be entered into forthwith after the passing of this act between His Majesty and the G.T.P. Ry. Co. embodying and providing for the carrying into execution of the provisions of this section."

Section one of the act provided a cash subsidy of $2,000 a mile and a land grant of 6,000 acres a mile to the G.T.P. Ry. Co. for the construction of a line not exceeding 200 miles from Thunder Bay to the Transcontinental Ry. main line. This was built and is known as the G.T. P. Ry. Lake Superior Branch.

C.P.R. Mechanical Department Machinery.

The C.P.R. Co.'s annual report for 1919, published in Canadian Railway and Marine World for May, stated that an appropriation of $363,236 had been authorized for mechanical department machinery at various shops. Following is a list of new machinery, etc., ordered for Angus shops, Montreal, for this year.

Locomotive Shops.

1 8,000 lb. steam hammer, with furnace.
1 42 in. x 42 in. x 10 ft. planer.
2 30 in. x 30 in. x 4 ft. planer.
1 axle lathe.
3 7 ft. radial drills.
2 2½ in. hexagon turret lathes.
1 alligator shear.
4 special bolt turning lathes
8 engine lathes, various sizes.
1 oxygraph cutting machine.
1 screwing machine.
1 nut facing machine.
1 14 in. slotting machine.
1 5½ in. Southwark flue welding machine.
1 42 in. Bullard vertical turret lathe.
1 5 in. Bardons & Oliver turret lathe.
1 broaching machine.
1 tool grinder.
1 pneumatic rivetter.
1 bulldozer.
1 Besly drumsander.
1 sand mixer for foundry.
4 electric welding units.
1 No. 4 plain milling machine,
1 20 ton travelling crane.

Car Shops.

1 axle lathe.
1 300-ton car wheel press.
1 toolmakers lathe.
1 coping punch.
2 bolt cutters.
1 geared power press.
1 10 ft. brake.
1 10 ft. gap shear.
1 pipe threading machine.
1 10-ton travelling crane.
3 pneumatic rivetters
1 14 in. slotting machine.
1 No. 3 plain milling machine.
1 6 ft. radial drilling machine.
1 2 in. flat pressed nut forging machine.
1 1in. flat pressed nut forging machine.
1 2 in. nut tapping machine.
1 spot welder.
1 10 in. foursided moulding machine.
2 gasolene 2½ trucks.
5 electric storage battery trucks.
1 car straightening frame.

Discussion on Valve Motion.

The paper on valve motion. by F. Williams, Mechanical Designer, Canadian National Rys., Moncton, N.B., which was published in Canadian Railway and Marine World for April, was discussed by Canadian Railway Club members, before whom it was read. Following are the principal remarks:—

W. A. Booth, Engineer of Locomotive Construction, G.T.R.:—The paper states that the Stephenson link motion is a back number, and I think we all agree with that. On account of the increased size of the locomotives now being built, it is not likely that any more motion of this type will be applied.

O. W. Young, Young Valve Gear:—The dynamic operation of a locomotive steam engine is accomplished by four essential acts; steam admission, expansion, exhaust and compression. Admission is the act of directing steam pressure against a piston. It is the motive agent employed for revolving the wheels. The duration of the admission period must be subject to control by the locomotive man. At his option it should be possible to admit steam to the cylinders during nearly the entire piston stroke, in order to ensure positive starting reliability and maximum power for initial train movement. The maximum cut-off must therefore be late. After starting a train it must then be possible to manually shorten cut-offs (the admission period), because less power is required to keep a train moving than is necessary to start and accelerate it, and because, also, small volumes of steam must be used, on account of difficulty of rapid exhaust after speeds become considerable, and further because it is impracticable to design locomotives with proper ratios between boiler capacity and cylinder volume, to permit the use of full cylinder capacity only at low speeds. In addition, late cut-offs are uneconomical since they preclude effective expansion. The range of duty required by a locomotive in starting, accelerating, attaining and maintaining high speed, is so great that it necessitates a wide range of cut-offs subject to control by a locomotive driver. The admission period must begin as early as the beginning of a piston stroke. It may, and usually does begin before the completion of the piston's return stroke and that portion of its period is called pre-admission. Steam is then admitted against a piston, tending to check movement, and cushion its momentum. The pre-admission period should not commence before the crank pin is practically on a dead center, when working in late cut-offs, and consequently slow speed. But it may, and it is desirable that it should, begin considerably earlier, when in early cut-offs (high speed position), because piston velocity is then greater, and greater cushioning power needed to absorb the shock of checking and reversing the direction of piston movement. It is desirable that during the admission period steam flow should be unobstructed, in order that there may be but little drop in pressure against a piston up to the point of cut-off. Any valve actuating mechanism tending to increase the widths of steam port openings is therefore for that purpose basically sound.

Expansion is the act of prolonging steam pressure against a piston after admission ceases. A mass of steam then in a cylinder cut off from further replenishment from a boiler, continues to expand and propel a piston with decreasing pressure until it is permitted to escape to the atmosphere. All piston movement during this process causes rotative impulse to the driving wheels, without further drain on a boiler, and is in the direction of fuel economy. The expansion period should therefore embrace the greatest practicable portion of piston movement. In all successful valve gears, the relative duration of the expansion period increases with shortened cut-offs. Expansion should be continued as late in the stroke as possible, and any valve gear that permits this, is in this respect desirable, provided it does not introduce objectionable features affecting other events in the cycle.

Exhaust is the act of relieving a cylinder of pressure. Its period may be divided into two stages. First, after expansion has been carried as late in the stroke as practicable, all steam tending to propel a piston should be permitted to escape to the atmosphere. Unobstructed means should be provided for escape to the lowest obtainable pressure by the time a piston has reached the end of a stroke, so as to ensure the least possible initial back pressure during the return stroke. This is particularly desirable at high speed, because it is not only then more difficult to accomplish, but the piston speed is then so great that it precludes material lowering of back pressure ahead of the advancing piston, during this, the second exhaust stage. A valve gear therefore that causes rapid valve opening during the first exhaust stage, and maintains liberal opening during the second stage, not only increases effective cylinder pressure, but the increased power is produced economically because of lower negative pressure.

Compression is the act of building up pressure to cushion a piston at the end of its stroke. Compression, together with pre-admission, serve to fill the clearance space between the piston when at either extreme position its nearest cylinder head and valve. These together ensure high initial pressure. All steam pressure remaining in a cylinder at the beginning of compression, together with 15 lb. atmospheric pressure, are concentrated into smaller space and should then approximate steam chest pressure. Compression and pre-admission blend into a common pressure. Compression costs only to the extent that it retards wheel revolution. Pre-admission costs in addition the amount of steam it draws from a boiler. Therefore, the terminal pressure should be largely caused by compression. That is, terminal compression should be so high that it will require but little if any additional pressure from pre-admission to build up a pressure equal to that in a steam chest. Compression should and does in all successful valve gears begin earlier at high speed (in short cut offs) than at low speeds. But at low speed terminal compression is lower and the influence of pre-admission more pronounced and expensive. At high speed it is difficult to avoid excessive compression, and any valve gear tending to lower initial compression logically accomplishes some economy.

That Mr. Williams knows human nature is most evident when he said in introducing his subject, that he hoped he might get on some of our pet theories. He did. Conceding that "valve motion has today reach a point where it cannot be greatly improved upon" does it follow that we cannot consider the constantly increasing cylinder sizes which demand the rapid handling of greater volumes of steam and, consequently, more liberal means of handling this volume? When 20 in. cylinders were the maximum in service the valve travel was 6 in., which was thought sufficient. An analysis of numerous tests with which I am familiar showed excellent steam distribution in 20 in. cylinders with 6 in. travel and 12 in. piston valves. That combination is therefore used as a basis for the arguments herewith presented.

The first duty required of a locomotive in train operation is the start. To ensure this, it is capable of demonstration by an analysis of main rod angles, and it is further proved by actual experience, that the maximum cut-off must be approximately 88% of the piston stroke. If of less than that percentage, a locomotive will frequently fail to start, even though coupled to a comparatively light train, without first slacking back, and not only reducing the initial load resistance, but also changing the crank and rod angles to more favorable leverages. In order to provide for 88% maximum cut-off, the sum of lap and lead must not exceed 19% of valve travel. A valve setting in the following tables is therefore so arranged, the figures representing inches.

Cylinder diameters.	Sq. inch piston area	Valve travel.	Lap and lead 19% of travel.	Lap.	Lead.	Valve Diameter.
20	314	6	1 9-64	57-64	¼	12
25	491	7	1 21-64	1 5-65	¼	17
30	707	7	1 21-64	1 5-64	¼	24

Port length.	Port width 25% c.o.	Port area 25% c.o.	Maximum cut-off.
28.7	9-32	8	88%
42	19-64	12.3	88%
60	19-64	17.7	88%

It will be noted in the table that for 20 in. cylinders the piston area is 314 sq. in., the valve diameter 12 in. with 28.7 in. port length exclusive of bridges, valve travel 6 in., lap 57/64 in., lead ¼ in., maximum port opening in 25% cut-off, 9/32 in. which causes 8 sq. in. steam port area. This is equal to 1/40 of the piston area. Assuming that a ratio of piston area to port area in 25%, cut-off of 40 to 1 is necessary for rapid steam flow into a cylinder during admission, and assuming that the valve travel for larger cylinders is increased to 7in. with valve lap of 1 5/64 in. and lead ¼ in., then for 25 in. cylinders with 491 sq. in. piston area the port area should be 12.3 sq. in. This would require a valve 17 in. in diameter with ports 42 in. long exclusive of bridges. 30 in. cylinders with 707 sq. in. of piston area, 7 in. valve travel, 17.7 in. port area require valves 24 in. diameter with ports 60 in. long. Twenty-five per cent. is considered in the foregoing, because that is the desired running cut-off, as all valve events then combine to produce the best economy and efficiency.

Valve travel of only 7 in. is mentioned, for the reason that with the Walschaert gear greater travel involves such acute angles in the movement of certain members of the gear that designing engineers have been reluctant to introduce them.

It is clearly shown that so far as the admission period is concerned, cylinders of 25 to 30 in. diameters require valves of 17 in. to 24 in. diameter to produce as free steam flow as 20 in. cylinders re-

ceive with 12 in. valves. When it is considered that 16 in. valves are the maximum now in service and that there are very few in service in passenger locomotives of over 14 in. diameter, it is very evident that the larger cylinders are handicapped by insufficient port areas.

Cylinder diameter.	Sq. In. piston area	Valve travel.	Lap and lead 19% of travel.	Lap.	Lead.	Valve diameter.
25	491	9	1 23-32	1 11-32	3/8	11
30	707	9	1 23-32	1 11-32	3/8	16

Port length.	Port width 25% c.o.	Port area 25% c.o.	Maximum cut-off.
26	15-32	12.3	88%
38	15-32	17.7	88%

The table shows that with 9 in. travel 11 in. valves may be used for 25 in. cylinders and 16 in. valves for 30 in. cylinders and still retain a 40 to 1 ratio between piston and steam port areas in 25% cut-offs. A valve gear arranged for 9 in. travel thus not only permits the use of smaller valves, but it may use valves now standard to large locomotives and greatly improve ratios between port and piston areas, and thus ensure very high initial pressure against the piston up to the point of cut-off, even at high speeds. As a result, it consequently has capacity to either haul heavier trains, or attain and maintain unusual speed, or both so far as the influence of admission extends.

If the sum of lap and lead is 19% of travel and the ratio between lap and lead the same, one gear with 7 in. travel and the other with 9 in. the duration in expansion periods in various cut-offs is alike, providing the exhaust setting is line and line in both cases, but more exhaust clearance may be used with increased travel without relatively shortening expansion.

Due to the fact that steam is cut off at higher pressure because of more adequate port openings the piston pressure is higher during expansion period, particularly at high speed, and increasingly so for increased cylinder diameters than is possible with gears causing less valve travel. It is evident, therefore, that increased power induced by improved admission caused by the gear with greater travel continues during the expansion period.

Initial pressure is applied to a piston at the beginning of its stroke. At that position all back pressure should have disappeared. The valve should have then caused the widest possible opening to the atmosphere. As the valve is displaced from its central position, the amount of lap and lead for the above piston position, and assuming that it is designed for line and line exhaust, the width then of exhaust opening is lap plus lead. Reference to the foregoing table shows that this is more than 3/8 of an inch greater in one case then the other, and this additional 3/8 of an inch in width of exhaust port opening, obtains throughout nearly the entire exhaust period and in all cut offs. Due to its greater valve travel, the exhaust port opens more rapidly in one case and it accomplishes decidedly wider openings during both exhaust stages. Increased capacity is thus provided for rapidly expelling large volumes of steam. Rapid valve opening, during the first exhaust stage, vacates the cylinder to an unusually low initial back pressure, and unusual width of exhaust opening, during the return piston stroke, further permits reduction in back pressure. This results in economically increasing effective pressure, and further augments the cylinder power created by improved admission. It logically follows then that with lowered back pressure, the pressure initially subject to compression is lower, and therefore lower terminal compression results, a further augmentation of cylinder power.

If the premise is sound on which this analysis is based, it is confidently submitted that increased valve travel, with proportionately increased lap, economically increases cylinder power. 1. By adequate steam port openings high pressure is maintained up to the point of cut-off. 2. On account of high cut-off pressure, expansive pressure is high. 3. Due to rapid and liberal exhaust port openings, exhaust is early and completely accomplished and low back pressure obtained. 4. Because of low initial compression, terminal compression is low. The improvement accomplished in these four acts cause high positive pressure, low negative pressure, increased mean effective pressure and result in greater draw bar pull. The practical operating benefits are positive reliability in starting; rapid acceleration; great hauling power, particularly at high speeds, capacity for unusually high speed and economical use of coal and water. It is in the hardest service that these benefits are most pronounced and upon the largest locomotives that they attain their maximum valve for these benefits become relatively greater with increasing cylinder diameters.

W. H. Sample, General Superintendent, Motive Power and Car Departments, G.T.R.:—We have quite a few valve motions on the G.T.R. We have some splendid Walschaert valve motion, some splendid Baker motion and also some Young motion. They are all giving good service and I have no partiality to show particularly; but I would like to say, for Mr. Williams' locomotives, that he has some of the best Walschaert motion that I have ever seen. There are other gears besides those mentioned, the Joy, which I had considerable experience with in Costa Rica, and the Southern gear, which is used quite extensively in the United States. The first mentioned, the Joy gear, was applied to locomotives I have references to in Costa Rica in 1885 and 1886, showing that the outside type of gear is not very new, but for some reason or other this type of gear was not adopted generally by Canadian or United States railways until within the last few years; but the dimensions of our locomotives have reached a point now where in my opinion the outside motion should replace the link motion.

T. H. Curtis:—Having had experience with a good many of the different valve motions I was able to follow Mr. Young's remarks very closely. Looking back over some years, the first locomotive I remember had the Hook motion. I do not know if you know what it was, but it had only a cut off at full forward and full back position—you had no intermediate choice whatever. With regard to the link motion; which is said to be a back number, it was a good motion, but as the weight of the locomotives increased and also the diameter of the axles, larger eccentrics were necessary, until we had a 21 in. eccentric with a 63 in. driving wheel, and when the locomotive was making 60 miles an hour the eccentric was slipping one third, or 20 miles an hour in the strap. It was this, and the important matter of lubrication, that put the link motion out of business. The Walschaert gear was used for over 40 years on the European continent before it was put on the market in America and I do not know what was the matter with our mechanical engineers that they did not adopt it before.

Coming to the matter of valve motion, the point is to get the steam into the cylinder, to accelerate the piston, and then get it out, when we are through with it, and the valve that gives the best opening on the fore part of the stroke of the piston is the one that lets it in the best. Some stationary engines have valves of the Corliss type, that shut and open by vacuum means, which gives a quick closure after leaving the valve open a long time, thus giving a good steam line and a free cut-off, and thus permitting of a long expansion, and in expansion there is economy. I am not prepared to speak upon the relative values of the different valve gears. Diagram 1, accompanying Mr. Williams paper (see Canadian Railway and Marine World, April, pg. 168), shows how you can lay off the movement of valves. You can do this in your own locomotive house or shop, by getting a board about 36 in. long for a locomotive with 30 in. stroke. Lay off on this board the steam port of the valve, and then lay off each inch of the stroke on the board; then commence with the engine in dead center and mark on the board the zero point position of the valves; then move the piston 1 in. and lay off the valve position again, and so on until the 30 in. of stroke have been designated and you have a valve diagram at the roundhouse, made to order. It is not the square sound of the exhaust, but it is the steam that gets into the cylinders that makes the good working engine. With your locomotive-house diagram you may then compare one locomotive with another and get a good idea of the relative valve motions of the different locomotives. In service some engines are good and some are poor, and possibly this valve diagram would tell you why some are poor. Mr. Young spoke about the large opening and high speed of a valve, that gives us plenty of steam and that steam is what makes the engine go.

F. Williams:—Mr. Young questioned my statement that as far as economical steam distribution is concerned valve motion design has today reached a point where it cannot be greatly improved upon. I still stand by that statement. If we take a Corliss stationary engine as possessing the nearest approach to a perfect steam distribution, I do not think that a simple engine running non-condensing will do much better than 20 lb. of superheated steam per h.p. hour and we have been able to get this result on locomotives. Mr. Young also spoke of the size of distribution valves necessary with different diameters of cylinder and based his reasoning on a 12 in. valve for a 20 in. cylinder. Is it not just possible that the 12 in. valve is larger than is absolutely necessary for this size of cylinder? We are getting good results from a 14 in. valve on a 24 in. and a 27 in. cylinder. I think Mr. Comley of the Franklin Railway Supply Co. is here, and I believe his company is advocating a smaller valve than we are using, perhaps he can tell us something about it. I think the results obtained in our service, by the use of the Walschaert valve gear, will compare favorably with other gears. Another point is that when a test is to be made the Walschaert gear is not always given a proper show. If any company has a patent gear to sell, and a test is to be made, they send an expert to supervise the application of the gear, and see that it is tuned up to the highest

point of perfection, whereas the Walschaert gear, as often as not, only receives the attention of the locomotive-house valve setter, and, although these men are usually thoroughly competent, the engine is generally turned out without a complete sequence of valve events being taken or recorded.

W. T. Comley, Franklin Railway Supply Co.:—The arrangement referred to by Mr. Williams is known as the Streamline Cylinder Ports. These ports make application of the well known principles governing the flow of gases, principles recognized as fundamental in the design of steam turbines. The steam port around the bushing is so arranged that, during the admission period, as steam issues from the valve it is divided into a number of streams, depending upon the number of bridges in the bushing. These streams are directed by ribs, so that they do not interfere with each other, but join into one smoothly flowing whole when the main passage is reached. During the exhaust stroke, the steam, as it flows from the cylinder to the valve, is divided by the ribs into a number of equal streams, one to each port in the bushing. Absence of all quick turns, and other baffling obstructions, speeds up the flow of steam, and by properly directing the flow of steam to and from the valve every square inch of the bushing port becomes effective. This arrangement permits the use of 8 and 10 in. valves where 14 and 16 in. valves were considered necessary, and at the same time facilitates the flow of steam, to and from the cylinder, to such an extent that the locomotive is noticeably smarter and faster.

O. W. Young:—In answer to Mr. Williams, permit me to say that I merely attempted to point out that, in the proportions that are commonly carried between the smaller and larger locomotives, we are not keeping consistent in the valve sizes and the width of port openings in proportion to the cylinder volumes that are handled. I did not come to this meeting to exploit any particular device, but am merely attempting to give something to think about, with the object of improving the service in the arrangement of steam distribution.

C. P. McGinnis:—One of our men was overseas and brought back a book published by the Belgian State Railways. It dealt particularly with the works of A. Walschaert, who was at that time 21 years old. When 27 years old he was Engineer of the State Railways, and it is interesting to note that in 1839, after experimenting with the Stephenson link motion they were then using on the engines, which were very small, he found that 2% and almost 3% of the tractive effort of the engine was absorbed in operating four large eccentrics which are fundamentally the Stephenson motion. Larger eccentrics were later on necessary and with the shorter valve travel they could cut down the wearing surfaces. His efforts to produce an improved valve motion were along the line of cutting down friction, although in this country we have come to believe that it came because the locomotives were getting bigger, and the larger boxes, frame bracing, etc., made it necessary to go to the use of an outside gear. Walschaert's idea was to reduce friction, and do away with the four large eccentrics, and put on an outside gear that would restore the tractive effort to almost 100% of its accredited efficiency. I only mention this to show that it is odd that we did not adopt the outside valve gear before, in an effort to get away from the friction. I cannot find any difference in the arrangement or size or designs of 1841 as compared with the locomotive of today.

Mr. Williams, in his paper, has outlined some of the fundamental truths of this matter. I remember some time ago in the southwest listening to a paper on valve motion. It was lengthy and many ways were shown that might have been adopted to get the steam in quickly and emit it quickly again, and how that today we do not get a bad starting locomotive because of the constant lead in full gear; and one of the foremost railway men said that as they were spending so much time and money to develop valve gears they should try to get away from the constant lead because it made a bad starting locomotive. I do not think anybody is going to say that about Mr. Williams' paper, because in one paragraph he covered that part of the subject.

I should like to ask Mr. Williams some questions. He says: "Care must be taken that the length of the combination lever adopted will bring the lower end of the lever to the correct level, to connect up with the union link, especially if the union link is connected directly to the wrist pin, which is the practice generally adopted unless the Ripken Kingan main rod arm is used." I should like to ask him if it is not the usual practice, in locomotive construction, that the union link should be horizontal, when the combination link is in vertical position for inside admission valves, and for outside admission valves is it not the practice that the union link should be horizontal at the end of the stroke,—this being necessary to correct inequalities between the front and back ports? I think it was established, some years ago, that, if possible, it was good practice to maintain the union link one sixth the length of the main rod, and if that could be done then all errors could be eliminated.

He also says: "The advantages of this arrangement are that the wear on the link support bearings is diminished, and the link block slip in running position may be kept very small, as the swing link describes an arc which is very similar to the arc struck by a point in the bottom of the link, the concave side of both these arcs being uppermost." On one line in New England I think there are only six locomotives out of some 400 or 500 on which they have not adopted the practice of having the link block at the top of the link in forward gear, and I would like to ask Mr. Williams, if he has not disregarded this practice, if he has not found that he gets better steam distribution by having the link block at the top of the link. A good many roads feel they get better steam distribution, and that one of the best ways to waste coal is to have an unequal steam distribution.

Mr. Williams also says: "We have already seen that reducing the lead will give us a better cut-off in starting position, and have decided, I think, that this is an advantage when starting the load. Reducing the steam lap has the effect of lessening the period of expansion, but by reducing the exhaust clearance the period of expansion is lengthened and thus the ill effects of cutting down the steam lap is neutralized." When you reduce the steam lap and the exhaust, do not both of these changes tend to reduce the opening through which the exhaust must pass? There may be advantages but it seems to me you do these things at the expense of the exhaust opening. If a perfect steam distribution gives perfect exhaust why does a perfect sounding exhaust not give perfect steam distribution? If the exhaust is regular and the valve setting is known to be correct, does it not indicate leaking valve or cylinder packing? I would like to ask Mr. Williams about changing the eccentric crank to give an engine a greater maximum cut-off. I had an experience on one of the western lines, where a number of the passenger locomotives that took the trains out of St. Paul, stalled on a stiff grade, but after they got a crossed lead they made a much better showing in getting over that particular point; they then went a little farther and set a number of the locomotives in the same way, and it worked all right, but on one occasion a locomotive handling a freight train pulled into a passing track to allow a passenger train to go by and had to back out, but it could not do so, the result was that they took off all the crossed lead on locomotives on that road. Later, on one of the western roads in Canada, 11 locomotives in passenger service were set with the crossed lead. I think it made them slightly blind in full gear. It worked out very well as long as they did not have to back out of any siding or were run in one direction only.

F. Williams:—In reply to Mr. McGinnis' question as to the correct level of the bottom of the combination lever to connect up with the union link. When the union link is connected to the wrist pin we have a very short combination lever, and the shorter the lever, the greater is the extreme angularity of the union link. On this account we generally find it advisable to have the bottom connection of the combination lever slightly below the centre line of the wrist pin for inside admission valves, in order to reduce the extreme angularity of the union link, especially if the union link itself is short. When we use a crosshead arm we have more latitude with the length of our combination lever as we can increase or decrease the depth of the crosshead arm to obtain just what we want, but when we make the connection directly to the wrist pin we haven't much choice in the matter.

C. P. McGinnis:—I take it that you do not have reference to locomotives that have the combination lever driven from the crosshead pin?

F. Williams:—They were new locomotives.

C. P. McGinnis:—They were locomotives that had crosshead arms below the level of the guides.

F. Williams:—If we make the union link level, when the combination lever is vertical, we get the maximum angularity when the engine is on dead centers and vice versa, and we have found it advisable to follow the practice I have just outlined in order to reduce the extreme angularity of the union link when using the short combination lever. The rule referred to by Mr. McGinnis was always followed when the long combination lever was in vogue.

C. P. McGinnis:—In the later designs, has it been possible to so locate the valve stem pin and reduce the bar so as to connect the union link one sixth the length of the main rod?

F. Williams:—I have never considered the union link in connection with the main rod, and have never heard anyone mention that subject before. The paragraph in the paper which speaks of reducing the lead has reference to freight locomotives which are generally operated on a long cut-off, and at a slower

speed, and they therefore do not require the same relative exhaust port opening on a 25% cut-off as the passenger locomotives do. That is why it is possible to cut down the lead and lap and eliminate the exhaust clearance.

C. P. McGinnis:—It is seldom used at 25%?

F. Williams:—If they are hauling their full tonnage they are loaded too heavily to run on a 25% cut-off. Mr. McGinnis asks if it is not a fact that a better steam distribution can be obtained with the link block in the top of the link? It may be that on certain locomotives you do get a better steam distribution with the block in the top of the link, but there is no necessity for it. I remember some locomotives we had built with this indirect motion and they had a good steam distribution; on a subsequent duplicate order we specified direct motion, and if we had simply rearranged the power reverse gear and eccentric crank and left the rest of the motion as it was, the steam distribution would have suffered. It was found desirable to change the location of the reverse shaft slightly, in order to eliminate as nearly as possible the link block slip in the new running position, and the locomotives when delivered had as good a steam distribution as the previous order. There is nothing in the idea that a better distribution can be obtained with the link block in the top of the link, but when designing a Walschaert gear, special attention should always be given to the running position in fore gear, whether this is in the top or the bottom of the link, and it would be very poor policy to indiscriminately change direct motion to indirect or vice versa, without first making sure that the steam distribution in running position would not suffer.

In answer to the question: "If a perfect steam distribution gives a perfect exhaust, why does not a perfect sounding exhaust give a perfect steam distribution?" I may say that, in the great majority of cases, a perfect sounding exhaust does indicate a good steam distribution, but it is not absolutely necessary that it should do so. In my own experience I have had occasion to look into the performance of locomotives which were reported as sounding perfectly square, but on being tried over they were found to be considerably out, and yet the combination of valve events gave an even exhaust. Mr. McGinnis' remarks on crossed lead are quite in accordance with my own ideas which were outlined in the paper.

T. H. Curtis:—I would like to mention, in connection with valve motion of locomotives, that when the high pressure steam is at the ends of the piston valve, which is balanced, there is a valve stem having an area of something like 4 sq. in. at one end of the valve chamber, but not at the other end, thus making a pressure of 800 lb. more on the forward end of the valve than on the rear, for 200 lb. steam pressure; this unequal pressure will slip the valve toward the rear, when the inertia of the valve is overcome, thereby causing excessive lead at the front end of the piston stroke which will cause a pound in the driving box, although one may take the valve tram and run over the valves only to find them square." They are square only when the steam pressure is low or off.

Another thing indirectly connected with valve motion; all steam distribution has so-called back pressure, for on the return stroke we do have "back pressure" and the clearance at the end of the stroke is the only place to put this pressure, if we have too little clearance we have a poorly running locomotive and one that is not economical. I hoped that Mr. Williams or someone else would touch upon this matter of proper clearance, as it is a very important item.

Birthdays of Transportation Men in June.

Many happy returns of the day to:

Jas. Anderson, ex Vice President, Sandwich, Windsor & Amherstburg Ry., Windsor, Ont., born at Ayr, Ont., June 20, 1851.

F. F. Backus, General Manager, Toronto, Hamilton & Buffalo Ry., Hamilton, Ont., born at Rochester, N.Y., June 4, 1860.

W. C. Bowles, General Freight Agent, Western Lines, C.P.R., Winnipeg, born at Montreal, June 3, 1875.

J. H. Boyle, Superintendent, Brownville Division, New Brunswick District, C.P.R., Brownville Jct., Me., born at Waterloo, Que., June 26, 1869.

F. P. Brady, General Manager, Eastern Lines, Canadian National Rys., Montreal, born at Haverhill, N.H., June 22, 1853.

H. W. Brodie, General Passenger Agent, lines west of Revelstoke, C.P.R., Vancouver, B.C., born at Fredericton, N. B., June 8, 1874.

G. W. Coburn, Resident Engineer, C. P.R., Brandon, Man., born at Upper Melbourne, Que., June 24, 1877.

E. P. Coleman, General Manager, Dominion Power & Transmission Co., Ltd., Hamilton, Ont., born at Taunton, Mass., June 14, 1867.

W. S. Cookson, General Passenger Agent, G.T.R., Montreal, born at Port Jervis, N.Y., June 12, 1871.

E. L. Cousins, Manager and Chief Engineer, Toronto Harbor Commission, Toronto, born there, June 11, 1883.

A. Craig, City Passenger Agent, C.P.R., Hamilton, Ont., born there, June 5, 1884.

J. M. Davidson, Division Engineer, Canadian National Rys., Winnipeg, born at Glasgow, Scotland, June 4, 1877.

C. P. Disney, Engineer of Bridges, Eastern Lines, Canadian National Rys., Toronto, born at Montreal, June 11, 1887.

A. E. Doucet, Quebec, ex-District Engineer, National Transcontinental Ry., born at Montreal, June 9, 1860.

Knowlson Elliott, City Freight Agent, C.P.R., Calgary, Alta., born at Gorrie, Ont., June 26, 1884.

J. M. R. Fairbairn, Chief Engineer, C.P.R., Montreal, born at Peterborough, Ont., June 30, 1873.

Jas. Ferguson, Trainmaster, Canadian National Rys., Prince Albert, Sask., born at Woodbridge, Ont., June 17, 1878.

W. E. Foster, Solicitor for Ontario, G.T.R., Montreal, born at Belleville, Ont., June 27, 1866.

A. A. Goodchild, General Storekeeper, Eastern Lines, C.P.R., Montreal, born at Peckham, London, Eng., June 3, 1866.

W. C. Guthrie, Superintendent, Schreiber Division, Ontario District, C.P.R., Schreiber, Ont., born at Arnprior, Ont., June 15, 1876.

L. R. Hart, General Agent, Passenger Department, C.P.R., Boston, Mass., born at Fairport, N.Y., June 3, 1877.

J. A. Heaman, Assistant Chief Engineer, Grand Trunk Pacific Ry., Winnipeg, born at Memphis, Tenn., June 3, 1874.

R. B. Jennings, Division Engineer, Canadian National Rys., Toronto, born at Paris, Ont., June 29, 1888.

L. K. Jones, I.S.O., ex-Assistant Deputy Minister, Department of Railways and Canals, Ottawa, born at Port Hope, Ont., June 9, 1849.

M. W. Kirkwood, General Manager, Grand River Ry., and Lake Erie & Northern Ry., Galt, Ont., born at Cheltenham, Ont., June 8, 1877.

L. Lavoie, Assistant General Purchasing Agent, Canadian National Rys., Toronto, born at Rimouski, Que., June 22, 1879.

J. D. McAuley, Commercial Agent, Grand Trunk Pacific Ry., and Grand Trunk Pacific Coast Steamship Co., Ltd., Prince Rupert, B.C., born at Plantagenet, Ont., June 11, 1884.

R. S. McCormick, Chief Engineer and General Superintendent, Algoma Central and Hudson Bay Ry., Sault Ste. Marie, Ont., born at Quaker City, Ohio, June 22, 1873.

S. J. McLean, Assistant Chief Commissioner, Board of Railway Commissioners, Ottawa, born at Quebec, June 14, 1871.

C. E. McPherson, Assistant Passenger Traffic Manager, Western Lines, C.P.R., Winnipeg, born at Chatham, Ont., June 7, 1861.

W. R. MacInnes, Vice President, Traffis, C.P.R., Montreal, born at Hamilton, Ont., June 7, 1867.

J. R. C. Macredie, Engineer, Saskatchewan District, C.P.R., Moose Jaw, born at St. John, N.B., June 13, 1880.

James Manson, Assistant to the Vice President, C.P.R., Montreal, born at Thurso, Scotland, June 8, 1863.

W. E. Massie, Mechanical Superintendent, Niagara, St. Catharines & Toronto Ry., St. Catharines, born at Elora, Ont., Ont., June 5, 1880.

J. D. Morton, General Auditor, Canadian National Rys., Toronto, born at London, Ont., June 15, 1857.

L. Mulkern, Division Freight Agent, C.P.R., St. John, N.B., born at London, Ont., June 18, 1871.

R. P. Ormsby, Secretary, Canadian National Rys., Toronto, born at Arklow, Ireland, June 26, 1869.

J. E. Pinault, General Superintendent Canada & Gulf Terminal Ry., Matane, Que., born at Rimouski, Que., June 24, 1884.

F. R. Porter, Assistant General Freight Agent, Grand Trunk Pacific Ry., Winnipeg, born at Stratford, Ont., June 13, 1875.

F. Price, Superintendent of Car Service, G.T.R., Montreal, born there, June 11, 1864.

Allan Purvis, ex-General Superintendent, Ontario District, C.P.R., Toronto, born at Batavia, Java, June 29, 1878.

L. J. Reycraft, Solicitor, Manitoba and Saskatchewan Districts, C.P.R., Winnipeg, born in Orford Tp., Kent County, Ont., June 20, 1868.

W. F. Sawyer, Assistant Superintendent, Division 5, Quebec District, Canadian National Rys., Edmundston, N.B., born at Drummondville, Que., June 13, 1883.

J. R. Shaw, Passenger Agent, Canadian Pacific Ocean Services, Ltd., Manila, Phillipine Islands, born at Montreal, June 28, 1871.

J. L. Simpson, agent, C.P.R., Port McNicoll, Ont., born at Mount Forest, Ont., June 9, 1866.

H. H. Smith, Car Accountant, Canadian National Rys., Toronto, born at Quebec, Que., June 14, 1872.

N. Van Wyck, Purchasing Agent, Can-

Appointment of Managing Committee for Grand Trunk Railway System.

The agreement entered into between the Dominion Government and the G.T. R. Co. of Canada, on Mar. 8, 1920, providing for the acquisition of the G.T.R. Co., and its subsidiaries, by the government, and which was ratified by the Dominion Parliament, contains the following section:—

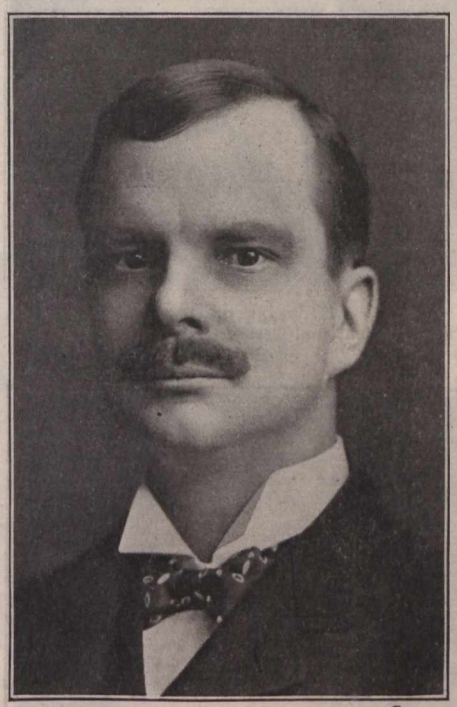
"4. Committee of Management. — Forthwith after the ratification of this agreement, as provided in the said act, a committee of management of the Grand Trunk System shall be formed, consisting of five persons, two to be appointed by the Grand Trunk, two by the government, and the fifth by the four so appointed. The functions of the Managing Committee shall be to ensure the operation of the Grand Trunk System (in so far as it is possible to do so) in harmony with the Canadian National Railways, the two systems being treated, in the public interest, as nearly as possible as one system. No contract or agreement shall be made by the Grand Trunk, or by any company comprised in the Grand Trunk System and controlled by the Grand Trunk, other than such as are necessary for the usual and ordinary business of the system, except with the concurrence of the Managing Committee and the approval of the Governor in council. The Managing Committee may, with the consent of the Governor in council, borrow from the government on Grand Trunk notes, or other obligations or securities approved of by the Governor in council, for the carrying on of the operation or improvement of the Grand Trunk System. The committee shall continue to act until the preference and common stocks are transferred to or vested in the government, when it shall be discharged."

The preference and common stocks will not be transferred to the government until their value, if any, has been decided by arbitration, by Sir Walter Cassels, Judge of the Exchequer Court, as chairman, and two others appointed by the Dominion Government, and two by the G.T.R., so that the Managing Committee will act until after the arbitration, and the transfer of the preference and common stocks to the government.

The government has appointed as its representatives on the committee, C. A. Hayes, Vice President in charge of Traffic, Canadian National Rys., and S. J. Hungerford, Assistant Vice President, Operation and Maintenance, Canadian National Rys. The G.T.R. has appointed as its representatives, Frank Scott, Vice President and Treasurer, G.T.R., and W. D. Robb, Vice President, Transportation and Maintenance, G.T.R. These four officials held a preliminary meeting in Montreal, May 21, and elected Howard G. Kelley, President G.T.R. and G. T. Pacific Ry., as the fifth member of the committee and its chairman.

Some of the daily newspapers have published a lot of nonsense in connection with this matter, the Toronto Globe, for instance, stated that Messrs. Kelley, Robb and Scott had been appointed members of the Canadian National Rys. board, which, of course, was absurd. The managing committee's duties and powers are clearly set forth in the section from the agreement reproduced above. They are entirely confined to the G.T.R. System, and none of its members as such have anything to do with the management of the Canadian National Rys.

H. G. Kelley,
President, Grand Trunk Railway and Grand Trunk Pacific Railway.



C. A. Hayes,
Vice President, Traffic, Canadian National Railways.

S. J. Hungerford,
Assistant Vice President, Operating, Canadian National Railways.

Charles A. Hayes, Vice President, Traffic, Canadian National Rys., Toronto, was born at West Springfield, Mass., Mar. 10, 1865, and entered railway service in 1882, since when he has been, to 1884, clerk, Freight Auditor's office, Connecticut River Rd., now Boston & Maine Rd.; 1884 to Oct., 1887, similar position, Boston & Lowell Ry., Boston, Mass.; Oct. 1887, to Nov., 1890, clerk, General Freight Agent's office, Boston & Lowell Ry., and its successor, Boston & Maine Rd.; Nov., 1890, to June, 1892, General Freight and Passenger Agent, Central New England & Western Ry., Poughkeepsie, N.Y.; June to Oct., 1892, Division Freight Agent, Philadelphia & Reading Rd., while it had control of the C.N.E. & W.R., Hartford, Conn.; Oct., 1892, to June, 1896, New England Agent, National Despatch Line, Boston, Mass.; June, 1896, to July, 1899, New England Agent and acting General Manager, National Despatch Line, Boston, Mass.; July, 1899, to May, 1903, Manager, National Despatch-Great Eastern Line, Buffalo, N.Y.; May, 1903, to Apr., 1908, Assistant General Freight Agent, G.T.R., Chicago, Ill.; Apr., 1908, to Oct. 16, 1911, General Freight Agent, G.T.R., Montreal; Oct. 16, 1911, to June, 1913, Freight Traffic Manager, G.T.R., Montreal; June, 1913, to June 1, 1917, Freight Traffic Manager, Canadian Government Railways, Moncton, N.B.; June 1, 1917, to Dec. 1, 1918, General Manager, Eastern Lines, Canadian Government Railways, Moncton, N.B.; and since Dec. 1, 1918, Vice President, Traffic, Canadian National Rys., Toronto.

Samuel J. Hungerford, Assistant Vice President, Operating, Canadian National Rys., Toronto, was born near Bedford, Que., July 16, 1872, and entered railway service in May, 1886, since when he has been, to Feb., 1891, machinist apprentice, South Eastern Ry., and C.P.R., Farnham, Que.; May, 1891, to Aug., 1894, machinist, at various points in Quebec, Ontario and Vermont; Sept., 1894, to Aug., 1897, charge man, C.P.R., Windsor St., Montreal; Aug., 1897, to Apr., 1900, Assistant Foreman, C.P.R., Farnham, Que.; Apr., 1900, to Feb., 1901, Locomotive Foreman, C.P.R., Megantic, Que.; Feb. to Sept., 1901, General Foreman, C.P.R., Cranbrook, B.C.; Feb., 1903, to Jan., 1904, Master Mechanic, C.P.R., Western Division, C.P.R., Calgary, Alta.; Jan., 1904, to Dec., 1907, Superintendent, Locomo-

tive Shops, C.P.R., Winnipeg; Jan., 1908, to Feb., 1910, Superintendent of Shops, C.P.R., Winnipeg, Man.; Mar., 1910, to Apr., 1915, Superintendent of Rolling Stock, Canadian Northern Ry., Winnipeg, May, 1915, to Nov. 1, 1917, Superintendent of Rolling Stock, C.N.R., Toronto; Nov. 1, 1917, to Dec. 1, 1918, General Manager, Eastern Lines, C.N.R., Toronto, and since Dec. 1, 1918, Assistant Vice President, Canadian National Rys., Toronto.

Howard G. Kelley, President, G.T.R., and Grand Trunk Pacific Ry., Montreal, was born at Philadelphia, Pa., Jan. 12, 1853, and entered railway service in 1881, since when he has been, to 1884, Assistant Engineer on location, construction and bridge construction, Western and Pacific Divisions, Northern Pacific Ry.; 1884 to 1887, engaged in mining; 1887 to Jan., 1860, Resident Engineer and Superintendent of Bridges and Buildings, St. Louis Southwestern Ry. System, including St. Louis South Western Ry. of Texas; Jan., 1890, to Mar., 1898, Chief Engineer, same road; Mar., 1898, to July, 1907, Chief Engineer, Minneapolis & St. Louis Rd.; July. 1900, to July, 1907, also Chief Engineer, Iowa Central Ry.; Mar., 1898, to Mar., 1899, also Consulting Engineer, St. Louis South Western Ry.; July, 1907, to Oct. 2, 1911, Chief Engineer, G.T.R., Montreal; Oct. 2, 1911, to Sept. 1, 1917, Vice President in charge of construction, transportation and maintenance, G.T.R., Montreal, and since Sept. 1, 1917, President, G.T.R. and Grand Trunk Pacific Ry. He is also director and Chairman of the Board, Central Vermont Ry. He is a C.E. of the Pennsylvania Polytechnic College, a member of the Institution of Civil Engineers of Great Britain, of the Engineering Institute of Canada and of the American Society of Civil Engineers, and was President of the American Railway Engineering and Maintenance of Way Association for two terms.

W. D. Robb, Vice President, Transportation and Maintenance, G.T.R., Montreal, was born at Longueuil, Que., Sept. 21, 1857, and entered G.T.R. service in 1873, since when he has been, to July, 1882, machinist apprentice, Montreal; July, 1882, to Jan., 1883, charge hand, Montreal; Jan. to Aug., 1883, night locomotive house foreman, Montreal; Aug., 1883, to Jan., 1897, Locomotive Foreman, Belleville, Ont.; Jan., 1897, to July, 1901, Master Mechanic, Toronto; July, 1901, to Sept. 1, 1917, Superintendent of Motive Power, Montreal, and since Sept. 1, 1917, Vice President, Transportation and Maintenance, Montreal.

Frank Scott, Vice President and Treasurer, G.T.R., Montreal, entered G.T.R. service in 1879, in the Audit Department, and passed through all the stages in that department, from that of junior clerk. He was appointed Treasurer in 1901, and in 1906 was appointed also Treasurer of the Grand Trunk Pacific Ry. In 1914 he was also appointed Vice President, G.T.R., and its subsidiary companies.

Central Ry. Co. of Canada Liquidation. In connection with this liquidation, a hearing was given by the referee in the Exchequer Court of Canada at Ottawa, May 10, to the claim of Senator James Domville for $20,000 as compensation for raising a loan for the company in 1906. He claims that he visited London, Eng., in the company's interests in that year and secured a loan of £40,000,000. The company has a charter to build a railway between Montreal and Midland, Ont.

Excess of Canadian Railway Cars in the United States.

The Minister of Railways, Hon. J. D. Reid, was asked in the House of Commons recently how many Canadian railway cars were then in the United States and how many U.S. cars were in Canada. He replied:—Up to Mar. 1, 1920, the following Canadian railway cars were on U.S. railways: Box cars, 42,347; auto cars, 3,502; refrigerator cars, 883; open top cars, 5,781; stock cars, 1,751; flat cars, 4,428; other cars, 1,024. Total, 59,716. Up to Mar. 1 the following U.S. railway cars were on Canadian lines: Box cars, 24,151; auto cars, 1,380; refrigerator cars, 1,388; open top cars, 11,934; stock cars, 187; flat cars, 1,454; other cars, 138. Total, 40,632. This showed that U.S. railways had 19,084 more Canadian cars, than there were U.S. cars on Canadian railways.

Frank Scott,
Vice President and Treasurer, Grand Trunk Railway.

W. D. Robb,
Vice President, Transportation and Maintenance, Grand Trunk Railway.

The Minister, in answer to another question on April 7, said that the 59,716 Canadian cars in the U.S. on Mar. 1 were owned as follows:—Canadian National Rys., 10,840; C.P.R., 15,482; G.T.R., 21,028; other Canadian railways, 12,366.

The Interstate Commerce Commission issued the following circular April 20:—"The following communication has been received by the Interstate Commerce Commission from the American Railroad Association Commission on Car Service: During the past week the press throughout the country has quite generally carried the following statement dated Ottawa, April 7: 'In the House of Commons today, the Minister of Railways informed Mr. Archambault that of the 59,716 Canadian cars in the United States, 10,840 belonged to the Canadian National Railways, 15,482 to the C.P.R., 21,028 to the G.T.R., and 12,366 to other Canadian railways.'

"In our opinion, the statement that there are 59,716 Canadian cars in the U.S. is misleading, as it seems to invite the inference that the Canadian lines have suffered a depletion of car supply to the extent of 59,716 cars. The fact is that at the last date for which complete reports are available, April 1, although 54,401 Canadian cars were on U.S. lines, 36,245 U.S. cars were on Canadian lines. The net balance against the Canadian lines was therefore 18,156 cars. Further than this the situation varies on the different lines. In the case of some of the Canadian roads they have on line more cars than they own, and the excess usually represents a surplus of equipment from U.S. lines. Also, the situation as to Canadian lines on April 1 was practically a normal one, that is to say, while the Canadian lines, as producers of box car freight, had less than their ownership of box cars, as non-producers and consumers of coal and other open top car freight, they had a surplus above ownership of open top cars."

Canadian Railway and Marine World is advised by the Railway Association of Canada, that its reports at April 1 do not agree with the U.S. Car Service Commission's statement, as they show that at that date there were 63,783 Canadian cars on U.S. lines, and 42,415 U.S. cars on Canadian lines, a balance of 21,368 against Canada.

C.P.R. Station Garden Operations.—A recent report gave some information as to gardening operations carried on by C.P.R. station agents under the direction of its horticultural department. Over 500 station agents and section men are interested in the work, and are reported to have put in requisitions for 150,000 annuals for planting, besides taking advantage of the general distribution of standard packages of seeds. Provision has been made for the planting of 20,000 perennial plants, 10,000 shrubs and 5,000 shade trees by those taking part in the work along the lines. A correspondence school in gardening has been started for the benefit of the men engaged in the work. The usual prizes for the best kept plots will be awarded this year.

Canadian Pacific Railway Construction, Betterments, Etc.

St. John, N.B., Bridge.—A decision is expected to be announced shortly as to the site for the construction of a new bridge across the St. John River's reversible falls, St. John. A press report states that the probable site is about 20 ft. above the present cantilever bridge.

The mayor of St. John and the city commissioner are reported to have inspected the locality recently with a view of the possibility of having the level crossing at Douglas Ave. done away with in connection with the building of the new bridge. It is stated that there are no serious engineering obstacles in the way of carrying the highway over the railway tracks at this point, and that the city engineer will meet C.P.R. engineers to discuss the matter.

Angus Shops, Montreal.—Daily press reports that these shops are to be doubled in size are exaggerated. We are officially advised that the extensions will provide an additional floor area of 223,550 sq. ft. and will cost approximately $1,000,000. Following are particulars of the extensions:—

LOCOMOTIVE SHOP.—An addition will be built at each end of the present shop, to give an additional floor area of 58,000 sq. ft. The construction will be steel frame, concrete foundation, brick walls. Mastic floor will be placed on the west end extension, and wood block floor, on concrete, in the east end extension. The east shop extension is to be used as a running shed, and for this reason pits, with mill type smoke jacks will be installed. All of the skylights will be constructed in wood, as metal has been found to deteriorate very rapidly, and for the same reason mill type ventilators will be used throughout this shop.

FREIGHT CAR SHOP.—An extension to the present building at the west end, 106 x 400 ft., to give an additional floor area of 42,400 sq. ft. The construction will be steel frame, concrete foundation, brick wall, wood floor and roof similar to present building.

THE PATTERN STORAGE will be extended at the west end 75 x 50 ft., giving an additional floor area of 3,750 sq. ft. It is a 3-floor fire proof building. The construction will be steel frame, concrete foundation, brick walls, steel sash, concrete roof and floors.

PASSENGER CAR SHOPS.—An extension of 102 x 161 ft. between shops 2 and 4, and 137 x 161 ft. between shops 1 and 3; and 137 x 239 ft. east end extension of shop 3, giving a total increased area of 71,000 sq. ft. The construction will be concrete foundation, brick walls, mill type roof, concrete and mastic floors.

These shops will be all served from the present transfer table, the pit of which is being extended.

THE CAR ELECTRICAL SHOP will be a new building 62 x 362 ft., with a floor area of 23,000 sq. ft. The construction will be steel frame, concrete foundations, with brick walls and acid proof mastic floor.

A PLANING MILL SHELTER, 126 x 144 ft. will be built on the west end of the present planing mill to keep material under cover as a weather protection and will have an area of 18,000 sq. ft. for this purpose.

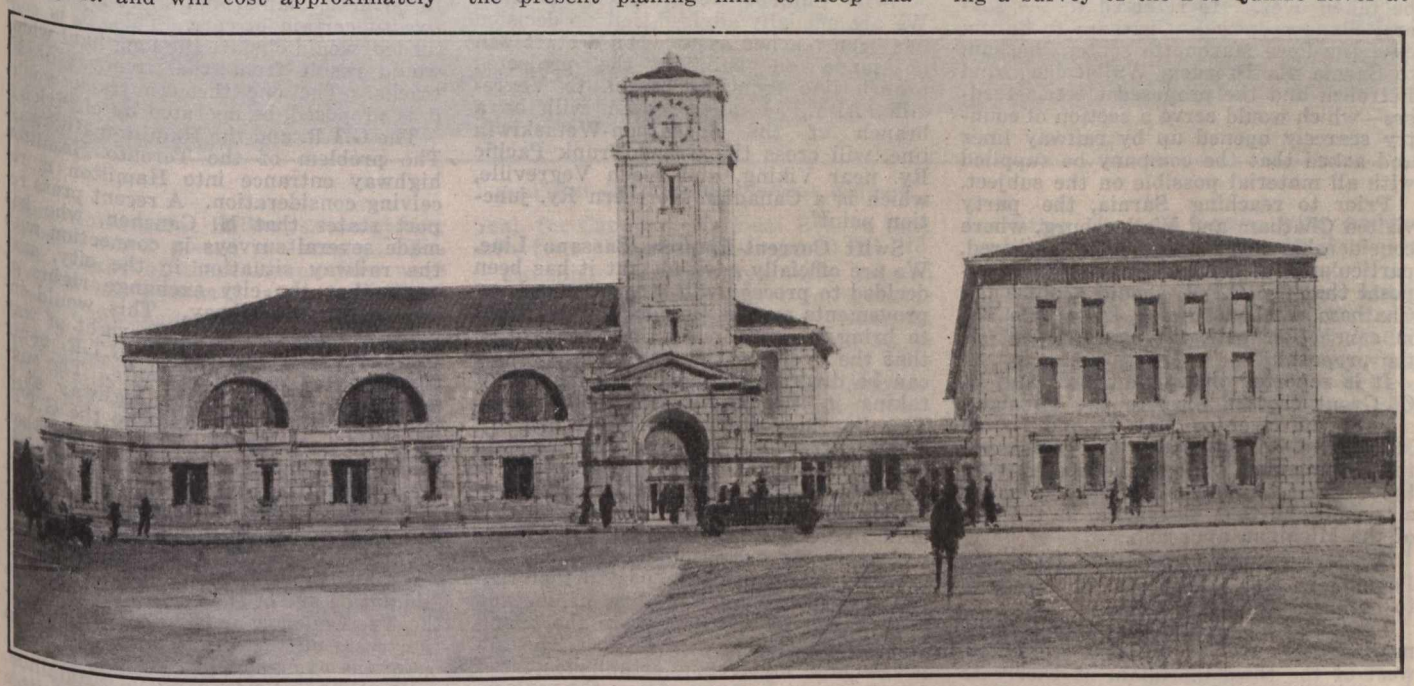
DRY KILN.—Four stalls will be added to the present west dry kiln, increasing the area by 7,400 sq. ft. The construction will be special, with ventilating ducts in walls, built in brick, and concrete foundation.

TRACK SCALE.—A heavy service tapered floor track scale will be installed at the west end, of capacity large enough to weigh locomotives. The construction will be of the most modern type, with self registering beam, scale shelter and concrete pit. The floor of the scale will be steel beams and stands, with a mastic scale platform.

YARDS.—A number of track changes and additions will be made at both ends of the yard, to provide extra car capacity. There will also be installed a 50-ton mechanical coaling plant, as well as a standpipe for switching engines.

St. Denis St. Viaduct, Montreal. — A press report states that the company has acceeded to the Montreal Administrative Commission's request not to exercise its contract right to increase the number of its tracks over the St. Denis St., Montreal, viaduct, which is being widened.

Timiskaming-Des Quinze River Branch. A Haileybury, Ont., press report of May 13 stated that J. M. R. Fairbairn, City Engineer, and other C.P.R. officials had arrived at South Timiskaming and proceeded by steamboat to Ville Marie, Que., to look over the territory through which the proposed line to the Des Quinze River Falls would pass. The C.P.R. has in operation a branch line from Mattawa, Ont., to the foot of Lake Timiskaming, at the point formerly known as Lumsden's Mills, Que., and a branch line therefrom to Kipawa, Que., and under the Interprovincial & James Bay Ry. charter has built 10 miles of line from Kipawa to Mercier Y. Surveys have been completed for the extension of this line to Kipawa River, and we were recently officially advised recently that H. Roberts, Assistant Engineer, was in charge of a party making a survey of the Des Quinze River at approximately mile 66 from Kipawa. This is the line for which the Quebec Legislature recently voted a special subsidy of $6,400 a mile (over and above a cash subsidy of $1,600 a mile), in case the Dominion Parliament did not grant a Dominion subsidy in aid of its construction.



New Station at Moose Jaw, Sask., Canadian Pacific Railway.

Peterborough Station.—A. D. MacTier, Vice President Eastern Lines, J. M. R. Fairbairn, Chief Engineer, and H. C. Grout, General Superintendent Ontario District, are reported to have had a conference recently with the Mayor of Peterborough, Ont., and city officials regarding the construction of a union station there. The C.P.R. and the G.T.R. stations are a considerable distance apart across the citiy from each other.

West Moncton Station.—A press report states that the company proposes to build a new station at West Moncton, Ont., on its Guelph and Goderich line.

Woodstock-Zorra Second Track. — We are officially advised that there is no intention of doing any second track construction between Woodstock and Zorra,

Ont., at present, as stated in a daily press report.

Windsor Freight Yards.—E. W. Beatty, President, is reported to have informed the Windsor, Ont., Chamber of Commerce on his visit to that city May 13, that it is proposed to lay out new local freight yards there.

London to Sarnia.—E. W. Beatty, President; Grant Hall, Vice President; H. C. Grout, General Superintendent Ontario District, and other C.P.R. officials visited Sarnia, Ont., May 13, to obtain information as to its railway necessities, and the traffic possibilities of a line from London to Sarnia. The party was received by the mayor, and other representatives of the City Council and of the Chamber of Commerce, who presented maps of the district, and information as to the population, trade, etc., of the district. Mr. Beatty is reported to have stated that there had been a charter for a C.P.R. line from London to Sarnia, but this had lapsed and there was no assurance that the Dominion Government would revive it in view of the fact that the G.T. is to be taken over. He referred to the several plans proposed—Chatham to Sarnia over the Pere Marquette route, Chatham to Sarnia via Dresden, Wallaceburg and Petrolea, and the proposed electric feeders—which would serve a section of country scarcely opened up by railway lines and asked that the company be supplied with all material possible on the subject.

Prior to reaching Sarnia, the party visited Chatham and Wallaceburg, where considerable information was gathered, particularly in connection with the proposal that the C.P.R. should acquire the Chatham, Wallaceburg & Lake Erie Ry. in connection with the carrying out of the proposal.

It is reported that Grant Hall and H. C. Grout crossed over to the Michigan side of the river on May 14 and visited Marysville. A suggestion has been made that connection be established between the Ontario and the Michigan shores by a tunnel, and that Marysville be the site of the Michigan approach.

Western Branch Lines.—The Dominion Parliament has authorized the company to build the following lines:—

From the Pheasant Hills Branch at or near Asquith in Tp. 36, ranges 9 or 10, west of the third meridian, northerly to the Wilkie Northwesterly Branch at or near Cloan in Tp. 42, range 20, west of the third meridian, Saskatchewan.

From the Moose Jaw Northwesterly Branch at or near Rosetown in Tp. 30, range 15, west of the third meridian, northerly and northeasterly to the Pheasant Hills Branch at or near Keppel in Tp. 35, ranges 12 or 13, west of the third meridian.

From near Kelfield, on the Wilkie-Anglia Branch in Tp. 34, range 19, west of the third meridian, easterly direction to Tps. 32 or 33, range 14, west of the third meridian, Saskatchewan.

From the Weyburn-Stirling Branch at or near Amulet in Tp. 8, ranges 20 or 21, west of the second meridian, westerly and northwesterly to the Moose Jaw Southwesterly Branch at or near Dunkirk in Tp. 12, range 28, west of the second meridian, Saskatchewan.

From the Crowsnest Subdivision at or near Kipp in Tp. 9, range 22, west of the fourth meridian, easterly and northeasterly to the Suffield-Blackie Branch at or near Retlaw in Tp. 13, range 17, west of the fourth meridian.

These lines are to be commenced within two years of the passing of the act, and to be completed within five years.

The company has also been granted an extension of time for five years for building a line from Tps. 6, 7, 8 or 9, range 30, west of the second meridian, westerly to the Alberta Ry. & Irrigation Co.'s railway at or near Stirling.

Moose Jaw Heating Plant.—Tenders were received to May 15 for the construction of a heating plant building at Moose Jaw, Sask.

The Moose Jaw Southwesterly Branch is already in operation to Assiniboia on the Weyburn-Lethbridge line, and we are officially advised that no decision has been reached as to when the first 30 miles, which a recent press report stated was to be built this year, will be put under contract. The extension from Assiniboia will connect with the Weyburn-Lethbridge line at Consul, Sask. A contract for the first 35 miles southeasterly from Consul was let in 1919, and grading is in progress. A recent press report stated that a further stretch of 25 miles was to be put under contract this year, but we are officially advised that no decision has been reached.

Swift Current Northwesterly Branch. We are officially advised that no decision has been reached as to when a start will be made on building the projected branch line from Sedgewick to Vegreville, Alta., 54 miles. This will be a branch of the Saskatoon-Wetaskiwin line, will cross the Grand Trunk Pacific Ry. near Viking, and reach Vegreville, which is a Canadian Northern Ry. junction point.

Swift Current-Empress-Bassano Line. We are officially advised that it has been decided to proceed with the proposed improvements on this line during this year, to bring it up to main line standard so that the overflow through freight traffic can be diverted to that route instead of taking it through Medicine Hat, Alta. This line is eight miles shorter between Swift Current and Bassano than the main line and has superior gradients. It is intended to take advantage of these conditions and to relieve congestion on the main line, where, during autumn and winter, traffic is exceptionally heavy. The capacity of the main line is further limited by the impracticability of making any considerable extension to the terminal facilities at Medicine Hat. The improvements involve the establishement of a terminal at Bassano, Alta.; the replacement of 65 lb. rails by 85 lb. rails; some slight grade revision between Swift Current and Cabri, and the installation of pipe lines and pumping plants to get water from the Red Deer and South Saskatchewan Rivers to suppl ywater stations.

Leader, Sask., Southerly Branch.—We are officially advised that no decision has been reached with regard to the placing under contract of 25 miles of grading in extension of the contract for the first 25 miles of grading, which was let in 1919.

Weyburn-Lethbridge Line Extension.—We are officially advised that a contract has been let to W. A. Dutton, Winnipeg, for grading 18 miles westerly from Altaman, on the Saskatchewan-Alberta boundary, on the extension of the line to meet the line from Stirling, Alta., which is in operation to Manyberries, Alta. It is expected that the grading will be completed this year, but it is not likely that the company will be able to go on with tracklaying until the spring of 1921.

Acme to Drumheller.—D. C. Coleman, Vice President Western Lines, is reported to have stated recently that the construction on the line from Acme to Drumheller, Alta., had been proceeding very favorably during the winter. In connection with the construction of this line a recent Calgary report stated that construction would be started at an early date on a line on a branch line from Duchess or Rosemary, on the main transcontinentay line, into the coa l mining areas, to connect with the Acme-Drumheller line. We are officially advised that while a charter for the construction of this line was obtained in 1919 no decision has been reached as to when construction will be started.

Vancouver Pier.—Dredging is proceeding at the site of the new pier at Vancouver, F. F. Busteed being in charge. (May, pg. 246.)

Grand Trunk Railway Construction, Betterments, Etc.

Ottawa Cross Town Tracks.—In connection with the project for removing the G.T.R. cross town tracks in Ottawa, a suggestion has been made for the elimination of all the tracks, with one exception, such a line to have short spurs to business plants, and short sidings between certain streets. This, it is contended, would obviate the long haul which would result from the removal of all tracks. The one through track would, it is proposed, be operated by electricity.

The G.T.R. and the Hamilton Highway. The problem of the Toronto Hamilton highway entrance into Hamilton is receiving consideration. A recent press report states that N. Cauchon, who has made several surveys in connection with the railway situation in the city, suggests that the city exchange rights of way with the railway. This would involve the use of the G.T.R. right of way for highway purposes, the G.T.R. being changed over to another route. The suggestion is to divert the highway at a point near the Kings Road to the G.T.R. right of way, the highway would then swing right into the city without the necessity of either bridge or fill, a saving, it is claimed, of something like $2,500,000 of the cost of the route at present suggested. The G.T.R. would be diverted to what is described as the 0.4 grade, laid out on one of the suggested routes on the Tye-Cauchon map. The whole question rests on the G.T.R.'s willingness to make the exchange.

Hamilton Bridges.—The Hamilton, Ont., City Council's railway committee is reported to have refused the company's application for permission to raise the overhead bridges at Macnab, John, Catharine and Mary Streets, Hamilton. The committee held that if the bridges are not high enough now, the proper remedy would be to lower the roadbed, as recommended in the Tye-Cauchon report on the railway situation in the city.

Hamilton-Sarnia Telephone Dispatching.—A press report states a contract will be let shortly for the installation of a telephone dispatching system between Hamilton and Sarnia, Ont.

London Division Track Relaying.—A press report states that seven miles of the track between Paris and London, Ont., have been relaid with new heavy rails and that the reballasting is being gone on with. New rails for other parts of the track in the division which is to be reliad are being delivered.

London Division Stations.—A press report states that new stations will be built this summer at Hawtrey, Ont., on the Stratford-Port Dover line, and at Clandeboye, on the London-Wingham line, the latter replacing the one destroyed by fire in 1919. (May, pg. 239.)

Railway Rolling Stock Orders and Deliveries.

Canadian National Rys. have received 11 mail cars out of an order of 20, placed in 1919 with Canadian Car & Foundry Co.

The C.P.R., between Mar. 16 and May 18, ordered 11 vans and 3 ballast spreaders, and received 4 vans, 3 Pacific locomotives and 2 freight locomotives from its Angus shops, Montreal.

Canadian Locomotive Co. has delivered four 12-wheel (4-8-0) locomotives to Jamaica Government Railways, completing an order for 7 placed in January. The chief details of these locomotives were given in our February issue, page 69.

The Timiskaming & Northern Ontario Ry., in addition to the 4 Mikado locomotives ordered from Canadian Locomotive Co., details of which are given on this page, has ordered 2 eight-wheel switching locomotives from Montreal Locomotive Works.

The G.T.R. has arranged for the overhauling and reinforcing of 240 freight cars at its London, Ont., shops. It is probable that another 500 will be dealt with there. Similar work is being undertaken to a number of 30 ton freight cars at its Montreal shops.

Canadian National Rys. have ordered 12 light Pacific type (4-6-2) locomotives from Montreal Locomotive Works, for the western lines. The specification is the same as that of the 10 heavy Pacific type locomotives given in our April issue, page 182, except that Young valve gear will be used.

The Canadian Car & Foundry Co. has made the following shipments of rolling stock since Apr. 15: 2 dining cars, 2 steel mail cars, from Montreal, for the G.T.R.; 440 repaired box cars from Fort William, Ont., for the Grand Trunk Pacific Ry.; 20 steel mail cars from Montreal, for Canadian National Rys.; 3 tank cars from Montreal, for Imperial Oil Ltd.

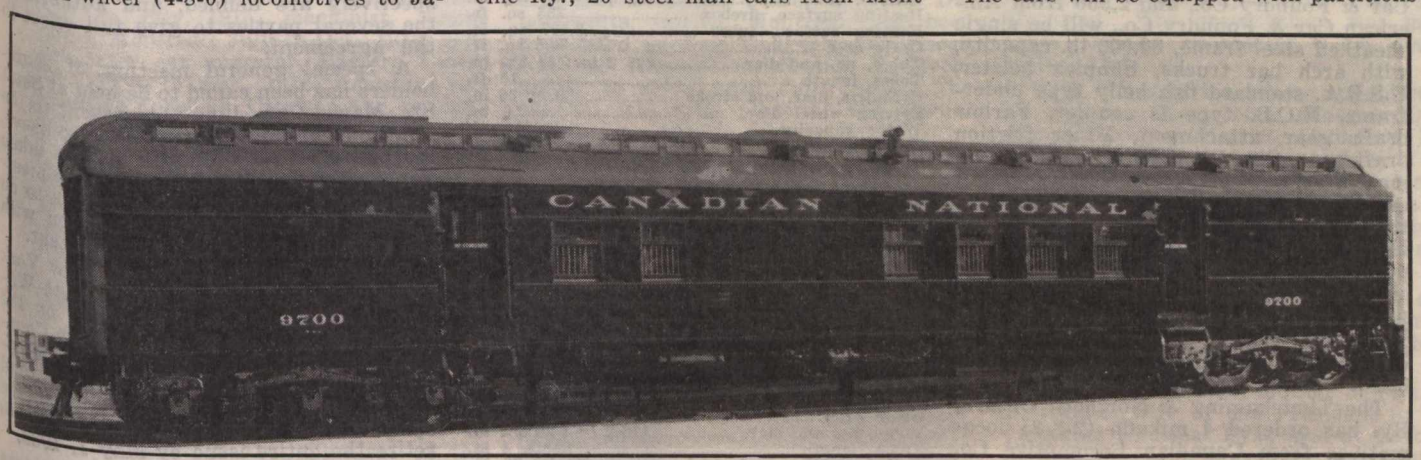
Canadian National Rys. have ordered 50 steel underframe express refrigerator cars, 30 tons capacity, from National Steel Car Corporation. They will be 45 ft. long over end sills, 8 ft. 11 in. wide over side sills, and will have Commonwealth trucks and Miner friction draft gear. Of these cars, 20 are for use on the Canadian National Rys., and 30 on the Grand Trunk Pacific Ry.

The C.P.R.'s 500 refrigerator cars which are being built at its Angus shops, Montreal, as stated in our last issue, will be duplicates of those built last autumn, and fully described and illustrated in our Nov., 1919 issue, page 585. They are designed with special reference to the transportation of fruit, and have proved entirely satisfactory for this service. In the lot now under construction it is the intention to fit up one or two with slightly different arrangements, for experimental purposes.

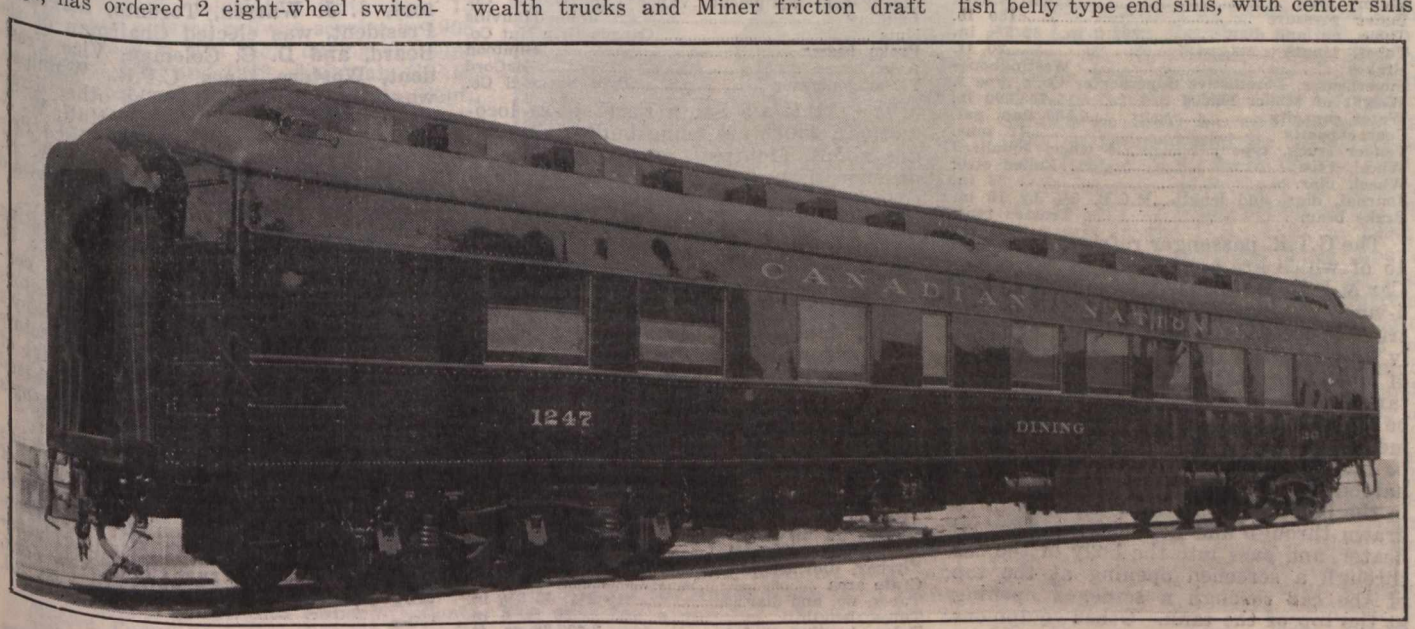
The G.T.R. 10 horse express cars ordered from the Osgood Bradley Car Co. will be 73½ ft. long, and of the same type of construction as the 60 ft. baggage cars, details of which are given in this issue, except that the Commonwealth six wheel cast steel truck will be used. The cars will be equipped with partitions for either 18 or 24 horses, with modern feeding troughs and overhead water tanks.

The G.T.R. flat cars, 1,000 of which have been ordered from the National Steel Car Corporation, will be of 100,000 lb. capacity, 40 ft. long between sills, and 9 ft. wide over floor. They will have fish belly type end sills, with center sills of usual design, M.C.B. type D couplers, Farlow draft gear attachment, Miner draft gear, cast steel truck bolsters, Miner roller rocker side bearings, four point brake beam suspension, Barber lateral motion roller bearing and U.S.R.A. arch bar type truck.

The G.T.R. baggage cars, of which the Canadian Car & Foundry Co. is building 50, will be 60 ft. long, of the G.T.R. standard composite construction, with steel underframe, steel side framing and wood exterior and interior, and wood roof cov-



Steel Mail Car, Canadian National Railways.



Steel Dining Car, Canadian National Railways.

ered with canvas. The equipment includes Commonwealth cast steel, 4-wheel truck, and Simplex clasp brake, Miner buffer, friction draft gear, roller side bearing and ideal hand brake, Coleman locking device, Utility ventilators, Vapor Car Heating Co.'s vapor heating system, Safety Car Heating & Lighting Co. and Stone-Franklin electric equipment, and Fowler upper buffer spring in connection with the diaphragm.

The G.T.R. automobile cars, 1,000 of which have been ordered from Canadian Car & Foundry Co., and 2,000 from American Car & Foundry Co., will be single sheathed steel frame, 80,000 lb. capacity, with arch bar trucks, Simplex bolster, U.S.R.A. standard fish belly type underframe, M.C.B. type D coupler, Farlow draft gear attachment, Miner friction draft gear, Simplex truck, Barber lateral motion roller bearing, Miner rocker roller bearing, steel ends, Camel door fixtures, Hutchins all steel flexible roof, Miner ideal staff type hand brake, four point brake beam suspension, etc. The chief dimensions will be:—

Length inside	40 ft. 6 in.
Length over striking plate	42 ft. 1½ in.
Height inside clear	9 ft.
Width inside clear	8 ft. 6 in.
Height over running board	13 ft. 7½ in.

The Timiskaming & Northern Ontario Ry. has ordered 4 mikado (2-8-2) locomotives from Canadian Locomotive Co. Following are the chief details:—

Weight on drivers	197,000 lb.
Weight, total	258,000 lb.
Wheel base of engine, rigid	16 ft. 6 in.
Wheel base of engine, total	34 ft. 8 in.
Heating surface, firebox	208 sq. ft.
Heating surface, tubes	3,1016 sq. ft.
Heating surface, total	3,259 sq. ft.
Driving wheels, diar.	63 in.
Driving wheel centers	Cast steel
Driving journals, diar and length	Main 10 x 13 in. Others 9 x 13 in.
Cylinders, diar. and stroke	25 by 30 in.
Boiler, type	Radial stayed
Boiler pressure	180 lb.
Tubes, no. and diar.	202 2 in.; 32 5⅜ in.
Tubes, length	20 ft.
Brakes	Westinghouse
Superheater, Locomotive Superheater Co.'s type A	
Weight of tender loaded	143,000 lb.
Water capacity	6,500 imp. gal.
Coal capacity	12 tons.
Tender truck, type	4 wheel equalized
Wheel, type	Rolled steel
Wheel, diar.	33 in.
Journal, diar. and length	M.C.B. 5½ by 10 in.
Brake beam	Trussed type.

The G.T.R. passenger refrigerator cars, 15 of which are being built by Canadian Car & Foundry Co., will be equipped with 4-wheel Commonwealth passenger car trucks, with 7 ft. wheel centers, fish belly type underframe, and superstructure of wood, portable rack frames and brine tanks, the latter so built that the car can be ventilated through the hatches in summer, and in winter a charcoal heater will be lowered into the brine tanks from the hatches. By opening the hand hole cover in the bottom of the tank, the air will be drawn through and heated by a charcoal heater, and pass into the body of the car through a screened opening at the top of the car through a screened opening at the top of the tank. Other equipment includes Gould friction buffer, Miner friction draft gear, M.C.B. type D coupler, cast steel yoke, Miner roller side bearings and ideal type staff hand brake, Miner refrigerator door fastenings, Laflare door insulation, inside metal roof, Ureco hand hole for brine tanks, Keystone insulation for side and roof, and Tuco insulation for floor.

The G.T.R. eight-wheel switching locomotives which are being built by Canadian Locomotive Co., as mentioned in a previous issue, and 25 of the same type locomotives ordered from Lima Locomotive Corporation for Western Lines operation, will have the following chief dimensions, with special equipment as in the case of the 6-wheel switching locomotives, which the G.T.R. is building at its Point St. Charles shops, except that they will have Commonwealth tender frame, instead of steel channel construction frame, and Miner type D coupler with cast steel yoke and key, instead of stub coupler casting with short shank coupler:—

Weight of engine loaded	240,000 lb.
Weight of tender loaded	166,360 lb.
Wheel base of engine	15 ft. 6 in.
Wheel base, engine and tender	52 ft. 5¾ ft.
Length, total	69 ft. 7½ in.
Heating surface, firebox	235 sq. ft.
Heating surface, tubes	2,497 sq. ft.
Grate area	56.6 sq. ft.
Tubes, no. and diar.	228 2 in.; 32 5⅜ in.
Tubes, length	15 ft.
Cylinders, diar. and stroke	26 by 30 in.
Driving wheel diar.	56 in.
Water capacity	9,000 gal.
Coal capacity	12 tons.

The G.T.R. 6-wheel switching locomotives, which it has under construction at its Point St. Charles shops, as mentioned in a previous issue, will have the following chief details:—

Weight of engine loaded	164,000 lb.
Weight of tender loaded	130,000 lb.
Wheel base of engine	11 ft. 6 in.
Wheel base, engine and tender	45 ft. 9½ in.
Length, total	62 ft. 6¾ in.
Heating surface, firebox	168 sq. ft.
Heating surface, tubes	1,751 sq. ft.
Heating surface, arch tubes	26 sq. ft.
Grate area	50.62 sq. ft.
Tubes, no. and diar.	178 2 in.; 28 5⅜ in.
Tubes, length	12 ft. 4 in.
Cylinders, diar. and stroke	22 by 26 in.
Driving wheel diar.	51 in.
Water capacity	6,000 gal.
Coal capacity	9 tons.
Staybolts	Tate, Flannery Bolt Co.
Fire door	Franklin Railway Supply Co.
Lubricator	Detroit 42
Piston and cylinder rings and bushes	Hunt Spiller Mfg. Corp.
Reverse gear	Ragonnet
Automatic grease cellars	Franklin
Air brake	Westinghouse E.T.
Superheater	Schmidt, Locomotive Superheater Co.
Unions and joints	Barco
Steam heat equipment	Vapor Car Heating Co.
Lagging	Johns-Manville
Nuts	Canada Grip Nut Co.
Brake beams	Huntoon
Axle boxes	McCord
Turbo generator	Pyle National Co.

The C.P.R.'s 5 Santa Fe (2-10-2) locomotives, which are being built at its Angus shops, Montreal, as mentioned in a previous issue, will be similar to those completed there recently, except that they will be equipped to burn both coal and oil as fuel. They will be equipped with Locomotive Superheater Co.'s type A superheater, Ragonnet reverse gears, Cole main driving boxes, automatic fire doors, double drawbars between engine and tender and Vaughan trailing truck, which will have a cast steel frame, and they will also be fitted with the company's standard vestibule cab. Following are the chief details:—

Cylinders	26½ x 32 in.
Driving wheels, diar.	58 in.
Boiler pressure	200 lbs.
Tractive effort	65,870 lbs.
Weight on drivers	275,600 lbs.
Weight of engine, total	354,600 lbs.
Firebox, dimensions	120⅛ x 88⅞ in.
Grate area	74.2 sq. ft.
Tubes, no. and diar.	219 2¼, 43 5½ in.
Tubes, length	20 ft. 6 in.
Tubes, heating surface	2,632.28 sq. ft.
Flues, heating surface	1,263.47 sq. ft.
Arch tubes, heating surface	43.75 sq. ft.
Fire box, heating surface	316.50 sq. ft.
Superheater, heating surface	1,015.00 sq. ft.
Total equivalent heating surface	5,778.60 sq. ft.

New Brunswick Public Utilities Commission.—A press report states that A. B. Connell, K.C., Woodstock, N.B., who was appointed a member of the Commission in 1912, has now been appointed chairman, in succession to the late G. O. Dickson Otty, K.C., and that J. D. P. Lewin, barrister, St. John, has been appointed a member of the board to fill the vacancy.

Railway Finance, Meetings, Etc.

Algoma Central & Hudson Bay Ry.—The Dominion Parliament is being asked to pass an act to confirm an arrangement for the adjustment of relations between the A. C. & H. B. Ry. Co., the Algoma Central Terminals Ltd., and the Lake Superior Corporation as set forth in an agreement between the several companies, whereby the rights of the bondholders and stockholders of the railway company and the terminals company respectively are defined, and authorizing the several parties to give full effect to the agreement.

A special general meeting of shareholders has been called to be held at Sault Ste. Marie, Ont., June 7, to assent to the scheme of arrangement referred to above, to approve of the directors' actions taken in the matter up to the time of the meeting, and to authorize the directors to do all that is necessary in connection with the carrying out of the arrangement.

Canadian National Rys.—A New York press report of May 17 states that William A. Read & Co. are placing on the market $15,000,000 of 7% 15 year Canadian National Rys. sinking fund equipment trust certificates. The sinking fund will be used to buy up certificates in the open market every half year, so as to retire the entire issue by May 1, 1935.

Canadian Pacific Ry.—The directors have declared a dividend of 2½% on the common stock for the quarter ended Mar. 31, being at the rate of 7% per annum from revenue and 3% per annum from special income account, payable June 30 to shareholders of record June 1.

The Kettle Valley Ry. Co.'s annual meeting was held at Montreal, May 5, and at a subsequent meeting of directors, J. J. Warren, Toronto, heretofore President, was elected Chairman of the Board, and D. C. Coleman, Vice President, Western Lines, C.P.R., Winnipeg, was elected President. The other directors are: I. G. Ogden, Grant Hall, W. R. MacInnes and A. D. MacTier, Vice Presidents, C.P.R., Montreal, and A. C. Flumerfelt, Victoria, B.C. H. C. Oswald is Secretary.

New Brunswick Ry. Co.—A meeting of shareholders has been called to be held at St. John, N.B., June 1, to consider a recommendation of the directors concerning the sale of the company's properties, and to authorize the directors to sell or dispose of all or any part of the same. The N.B. Legislature passed two acts recently affecting the company's land holdings in the province.

New York Central Rd. Co.—There has been deposited with the Secretary of State at Ottawa, copy of an agreement dated April 15, between J. Carstensen, M. S. Barge rand H. G. Snelling, vendors, the Guaranty Trust Co. of New York, trustee, and the New York Central Rd. Co.

The Board of Railway Commissioners is reported to have decided May 17 that an application to compel the G.T.R. to operate six trains a day between Cote St. Paul and Bonaventure station, Montreal, be dismissed. The service was cut off in 1917, owing to continued deficits in the operation and the necessity for economy during war time. When the fare on the Montreal Tramways Co. averaged about 3c. the people travelled between Cote St. Paul and Montreal that way, but when the M. T. Co.'s fare was raised to 7c. they wanted to get the 5c. railway service back again.

Mainly About Railway People Throughout Canada.

Edward Greig Bowie, who has been appointed Master Mechanic, Brownville Division, New Brunswick District, C.P.R., Brownville Jct., Me., was born at Winnipeg, Aug. 20, 1892, and entered C.P.R. service in May, 1907, since when he has been, to Aug., 1912, machinist apprentice, Winnipeg; May, 1912, to Sept., 1914, machinist, Winnipeg, and on Western Lines; Oct., 1914, to Apr., 1915, Master Mechanic's clerk, Calgary, Alta.; Apr. to July, 1915, machinist, Angus shops, Montreal; July to Oct., 1915, dynamometer car operator, Eastern Lines; Oct., 1915, to Apr., 1916, Assistant Locomotive Foreman, Ottawa; Apr. to Nov., 1916, Assistant Foreman and Locomotive Foreman, Outremont, Que.; Nov., 1916, to May, 1917, Locomotive Foreman, Sherbrooke, Que.; May, 1917, to June, 1918, Locomotive Foreman, Smiths Falls, Ont.; June, 1918, to Apr. 24, 1920, General Foreman, McAdam Jct., N.B.

F. S. Brown, Trainmaster, Michigan Central Rd., Detroit, Mich., and formerly of St. Thomas, Ont., died at Detroit, May 4, aged 52, from pneumonia.

J. A. Burnett, electrical engineer, of Smart & Burnett, consulting engineers, Montreal, has been appointed by the G.T.R. to assist in the appraisal of the electrical equipment of the St. Clair River tunnel, Montreal & Southern Counties Ry., and Oshawa Electric Ry., in connection with the pending acquisition of the G.T.R. by the Dominion Government.

John Robert Caswell, whose appointment as Division Engineer, Sudbury Division, Ontario District, C.P.R., Sudbury, Ont., was announced in our last issue, was born at Coldwater, Ont., Apr. 13, 1892, and entered railway service in 1908, since when he has been, during the summers of 1908 and 1909, chainman, C.P.R., Coldwater and Toronto; Apr. to Sept., 1910, chainman, C.P.R., Toronto; Sept., 1910, to Aug., 1912, rodman and chainman, C.P.R., Coldwater and Guelph Jct., Ont.; Aug., 1912, to Jan., 1915, transitman, C.P.R., Guelph Jct. and Montreal; Jan. to Oct., 1915, transitman, Lake Erie & Northern Ry., Simcoe, Ont.; Oct., 1915, to Oct., 1916, Assistant Engineer, Westinghouse Church Kerr & Co., and Aetna Chemical Co., Drummondville, Que.; Oct., 1916, to Jan., 1917, party chief, Foundation Co., Port Colborne, Ont.; Jan. to Apr., 1917, transitman, Hydro Electric Power Commission of Ontario, Niagara Falls, Ont.; Apr., 1917, to Jan., 1918, senior transitman, C.P.R., London, Ont.; Jan. to Sept., 1918, transitman, H. E. P. C. of Ontario, Niagara Falls, Ont.; Sept., 1918, to Apr. 1920, Division Engineer, London Division, Ontario District, C.P.R., London, Ont.

James Coleman, who has been appointed Assistant to General Superintendent, Motive Power and Car Department, G.T.R., Montreal, was born at Port Huron, Mich., and started work with the G.T.R. as a car department apprentice in 1873. He worked at Port Huron until 1889, when he was appointed foreman at Chicago, remaining in that position until 1899, when he was appointed Master Car Builder, Central Vermont Ry., at St. Albans, Vt. In 1905 he entered the Canada Car Co.'s service at Montreal, taking charge of the manufacturing department, and in 1906 returned to his former position with the Central Vermont. In Jan., 1908, he was appointed Superintendent, Car Department, G.T.R., at Montreal, and on May 1, 1920, was appointed to his present position, his former one being abolished. He was second Vice President of the Master Car Builders Association for the year 1916-17, and has been nominated as Vice Chairman, American Railroad Association, Section 3, Mechanical, the election for which will take place at Atlantic City in June.

J. Coleman, Assistant to General Superintendent Motive Power and Car Departments, G.T.R., Montreal, has been nominated as Vice Chairman, American Railroad Association, Section 3, Mechanical, to serve until June, 1922. The election will take place at the annual meeting in Atlantic City in June.

W. R. Davidson, General Superintendent, Western Lines, G.T.R., Chicago, Ill., was entertained at dinner, and presented with a diamond scarf pin by his associates at the end of April, at Montreal,

H. C. Grout,
General Superintendent, Ontario District, Canadian Pacific Railway.

where he was General Superintendent, Eastern Lines, on leaving the district for Chicago, to take up his new duties.

Mathew Cochran Dickson, who died at Hamilton, Ont., May 1, after a long illness, was born at Juniper Green, near Edinburgh, Scotland, Apr. 23, 1846, and was brought to Canada when quite young. He was for a number of years, up to June 30, 1885, Assistant General Freight and Passenger Agent, Northern & North Western Ry. (now part of G.T.R.), Toronto; July 1, 1885, to Feb. 28, 1888, Travelling Passenger Agent, Missouri Pacific Ry., Chicago, Ill.; Mar. 1, 1888, to Aug. 7, 1890, General Freight and Passenger Agent, Erie & Huron Ry., Sarnia, Ont.; Aug. 7, 1890, to May 31, 1902, District Passenger Agent, G.T.R., Toronto; June 1, to July 16, agent, Transportation Department, G.T.R., Wingham, Ont.; July 16, 1902, to Oct. 23, 1909, agent, G.T.R., Woodstock, Ont.; Oct. 23, 1909, to May 1, 1911 Agent G.T.R. Brantford. On May 1, 1911, he retired on pension and moved to Hamilton, where he for some years, as long as his health permitted, conducted a steamship ticket agency.

R. H. Fish, General Superintendent, Eastern Lines, G.T.R., Montreal, was entertained Apr. 30, by a number of friends and associates at Stratford, Ont., where he was Superintendent for a number of years, and presented with a silver tea service and cabinet of silver, on leaving Stratford to take up his new duties at Montreal. The presentation was made by W. White, Trainmaster, G.T.R., Palmerston, Ont.

W. R. Fitzmaurice, whose appointment as Superintendent, New Glasgow Division, Maritime District, Canadian National Rys., New Glasgow, N.S., was announced in our last issue, was presented with a travelling bag, May 7, by the staff at Campbellton, N.B., where he had been Superintendent, prior to leaving to enter on his new duties.

Timothy Foley, railway contractor, etc., died at St. Paul, Minn., May 25, after an illness of several months. He was born in Lanark County, Ont., in 1838.

Mrs. T. A. Garland, mother of Mrs. D. B. Hanna, wife of the President of the Canadian National Rys., died at Portage la Prairie, Man., May 11. Mrs. Hanna was there at the time, and Mr. Hanna went from Toronto for the funeral.

Gordon Grant, whose appointment as Chief Engineer, Dominion Highways Commission, was announced in our last issue, was born at Dufftown, Banffshire, Scotland, Jan. 2, 1865, and is a son of the late Peter Grant, a member of Sir Sandford Fleming's staff on the construction of the Intercolonial Ry. and the C.P.R. He was educated at Ottawa, and went to the Argentine Republic in 1881 with his uncle, W. B. Grant, Chief Engineer, Buenos Aires Southern Ry., and remained there for six years. On his return to Canada in 1887, he was engaged, until 1890, on Intercolonial Ry. construction in Cape Breton, N.S.; from 1890 to 1893, on C.P.R. survey work east of Montreal; 1893 to 1897, on construction on the Flagler roads in the U.S.; 1897 to 1900, on construction, Crowsnest Pass line and Kootenay and Arrowhead Ry. for the C.P.R.; 1900 to 1903, chief draftsman, Construction Department, C.P.R., Montreal; May, 1904, to Feb., 1905, on location work, C.P.R., in British Columbia; Feb., 1905, to Sept.. 1906, on location work northwest of Quebec, Que., National Transcontinental Ry.; Sept., 1906, to May, 1907, Assistant District Engineer, National Transcontinental Ry., Quebec, Que.; May, 1907, to Aug., 1909, Inspecting Engineer, N.T.R. Commission; Aug., 1909, to 1917, Chief Engineer, National Transcontinental Ry.; 1917 to Jan., 1919, Chief Engineer, Quebec & Saguenay Ry.; Jan., 1919, to April, 1920, Consulting Engineer, Department of Railways and Canals.

Phelps Johnson, G. H. Duggan and G. F. Porter were recipients recently of the Gzowski Medal, presented this year for the first time in triplicate, as collaborators of a brochure entitled "The Design, Manufacture and Erection of the Superstructure of the Quebec Bridge," considered by the Engineering Institute of Canada to be the most valuable contribution to engineering literature during the year.

Dr. Thomas Wilson Lambert, who is stated in a press report to have been formerly at St. Thomas Hospital, London,

Eng., and afterwards "in medical charge of the western section, C.P.R.," died in London, Eng., recently. He is referred to as having been well known in British Columbia, as a fine shot and an expert salmon fisher. He was born in Hull, Eng., and we are officially advised that between 1890 and 1900 he served as medical officer between North Bend and Sicamous, on the British Columbia District C.P.R., with headquarters at Kamloops.

Herbert J. Lambkin, whose appointment as District Commissary Agent, Sleeping, Dining and Parlor Car Department, Canadian National Rys., Winnipeg, was announced in our last issue, was born at Quebec, Que., July 25, 1881, and entered transportation service in August, 1906, since when he has been, to May 1, 1909, sleeping car conductor, C.P.R., Montreal; June, 1909, to Oct., 1917, Train Agent and Travelling Passenger Agent, Grand Trunk Pacific Ry., Winnipeg; Nov. 1917, to Apr., 1920, Inspector, Sleeping, Dining and Parlor Car Service, Canadian Northern Ry., and Canadian National Rys., Winnipeg.

F. S. MacDonald, Trainmaster, North Shore Section, Pacific Great Eastern Ry., Vaucouver, B.C., died recently. This is a local line of 12 miles, operated by gasoline cars.

M. H. MacLeod, Vice President, Operation and Maintenance, Canadian National Rys., Toronto, who, as stated in Canadian Railway and Marine World for May, was spending some time in Victoria, B.C., for the benefit of his health, went to Winnipeg towards the end of May. He will spend some time on the western lines, on business, and is expected to return to Toronto late in June.

George R. Mash, a former Assistant General Purchasing Agent, G.T.R., died at Montreal, May 21, aged 83. He was born at Toronto, educated in Upper Canada College and graduated as a civil engineer. He entered railway service as private secretary to General Manager, Great Western Ry. (now part of G.T.R.), Hamilton, Ont. Later he was on the engineering staff on the construction of the Hoosac Tunnel near North Adam, Mass., and was subsequently appointed General Manager, Detroit, New Haven & Milwaukee Rd., Detroit, Mich., and when that railway was taken over by the G.T.R. in 1884 he was appointed Assistant General Purchasing Agent, G.T.R., at Montreal, which position he held until his retirement in 1890.

W. T. Moodie, Superintendent, Canadian National Rys., Port Arthur, is spending a vacation at Vancouver, B.C., with his wife and family.

Charles R. Moore, who has been appointed General Superintendent of Car Service, G.T.R., Montreal, was born at Hamilton, Ont., Oct. 12, 1867, and entered G.T.R. service in 1883, since when he has been, successively, junior clerk, Mechanical Accountant's office, Hamilton, Ont.; and in the Motive Power, Car, Maintenance of Way and Transportation Departments, Montreal, and at various terminals on the system. In 1911, being then chief clerk to Superintendent, Toronto, he was appointed chief clerk to the then Vice President (H. G. Kelley), and in May, 1916, he was appointed Assistant to Vice President, Construction,, Operation and Maintenance (H. G. Kelley), and in Sept., 1917, Assistant to Vice President in charge of Motive Power, Car Equipment and Machinery (W. D. Robb), which position he held at his present appointment.

Reginald Frederick Nicholson, whose appointment as Assistant Engineer, Portland Division, Eastern Lines, G.T.R., Portland, Me., was announced in our last issue, was born in London, Eng., July 2, 1892, and entered railway service in Aug. 1911, since when he has been, to Feb., 1913, rodman, C.P.R., Vancouver, B.C.; Feb. to Oct., 1913, rodman, Esquimalt & Nanaimo Ry., Union Bay, B.C.; July to Dec., 1914, draftsman, Pacific Great Eastern Ry., Lillooet, B.C.; July, 1916, to Dec., 1917, mining surveyor, Prestea, Gold Coast, West Africa.

J. T. Peer, who died at Indianapolis, Ind., at the end of April, after a short illness, aged 37, was for a number of years in C.P.R. service at Toronto, and for the past few years was in service of the United Grain Growers Ltd., Winnipeg.

Jos. Quinlan, who recently retired from the position of District Passenger Agent, G.T.R., Montreal, under the pension fund rules, after 43 years with the company, was entertained by a number of his friends and former associates at Mont-

W. J. Uren,
Assistant General Superintendent, Quebec District, Canadian Pacific Railway.

real, May 4, and presented with a set of diamond studed gold cuff links and a purse of money.

Hon. J. D. Reid, Minister of Railways and Canals, has been elected a member of the Old Time Telegraphers' and Historical Association.

Dr. A. Gordon Rice, Divisional Surgeon, G.T.R., Toronto, died there, May 20, aged 36, after a long illness. He was appointed to the G.T.R. position in 1914.

J. G. Rutherford, C.M.G., one of the members of the Board of Railway Commissioners, will receive the honorary degree of Doctor of Veterinary Science, of the University of Toronto, in June.

Lord Shaughnessy, Chairman, C.P.R. Co., and **Sir John Kennedy,** Consulting Engineer, Montreal Harbor Commissioners, were presented with gold badges as honorary members of the Engineering Institute of Canada, at a recent meeting of the Montreal branch. The badges are replicas of the one especially struck for the institute for presentation to the Prince of Wales, on his installation as an honorary member, during his recent Canadian tour.

Mrs. Sutherland, wife of Hugh Sutherland, of Winnipeg, formerly Executive Agent, Canadian Northern Ry., and now President, Western Dominion Collieries, and one of the Winnipeg Electric Ry. directors, died on May 9, at St. Paul, Minn., where she was taken ill, on her way home, after spending some time in Florida.

Charles Henry Worby, whose appointment as Assistant Superintendent, Sleeping, Dining and Parlor Cars and News Service, Western Lines, Canadian National Rys., Winnipeg, was announced in our last issue, was born at London, Ont., May 18, 1883, and entered transportation service in July, 1899, since when he has been, to Aug. 15, 1900, booking clerk, Royal Albert Dock Ry., London, Eng.; Aug. 16, 1900, to Sept. 14, 1906, chief clerk, Central London Ry., London, Eng.; July 2 to Sept. 30, 1913, store clerk, Canadian Northern Ry., Winnipeg, Man.; Oct. 1, 1913, to May 31, 1915, Inspector, Sleeping and Dining Cars, same road, Winnipeg; June 1, 1915, to Apr. 30, 1917, Agent, Sleeping and Dining Car Department, same road, Saskatoon, Sask.; May 1 to Oct. 31, 1917, Agent, Sleeping and Dining Car Department, same road, Winnipeg; Nov. 1, 1917, to May 31, 1918, District Commissary Agent, Sleeping and Dining Car Department, same road, Winnipeg; June 1, to Sept. 16, 1918, acting Assistant Superintendent, same road, Winnipeg; Sept. 17, 1918, to Apr. 30, 1920, District Commissary Agent, Sleeping and Dining Car Department, Canadian National Rys., Winnipeg.

John Anderson Wright, whose appointment as Assistant Foreign Freight Agent, G.T.R., Montreal, was announced in our last issue, was born at Peterborough, Ont., Oct. 27, 1881, and entered G.T.R. service May 1, 1899, since when he has been, to Dec. 31, 1899, junior 1900, to Feb. 28, 1901, stenographer, clerk, General Freight Office; Jan. 1, same office; Jan. 1, 1903, to Sept. 22, 1904, stenographer, Foreign Freight Agent's office; Sept. 23, 1904, to July 31, 1907, stenographer, General Freight Agent's office; Aug. 1, 1907, to May 31, 1915, clerk, Foreign Freight Office; June 1, 1915, to Mar. 31, 1917, chief clerk, same office; Mar. 1, 1917, to Apr. 25, 1920, Grain Agent, Foreign Freight office, all at Montreal.

The Winnipeg Railway Clerk's Association has been incorporated for mutual protection, against loss of wages through illness or accident; the promotion of social, physical and mental welfare of the members; the appointment of a committee to negotiate with employers as to wages, etc., and other purposes connected with the members' interests. The incorporators are:—W. Bone, C. T. Brindle, J. McRoberts, H. O. Hughes, W. B. Marsden, J. Jack, G. A. Winks, L. P. Rosson, H. T. Rinnick, and Miss E. G. Hunter, all described as railway clerks.

Sir Robert Reid's Will.—The action brought by Miss Reid, against other members of the family, the Reid Newfoundland Co., Lord Shaughnessy and others, with respect to the late Sir Robert Reid's will came before the Probate Court in Montreal May 7 on an amended plea filed by Miss Reid, and was adjourned for a month, owing to the absence of some of the parties in Newfoundland and in Europe.

Railway Development, Projected Lines, Surveys, Construction, Betterments, Etc.

Burrard Inlet Tunnel & Bridge Co.—The Dominion Parliament has extended for two years the time within which the company may commence the construction of a tunnel under the first narrows of Burrard Inlet, and a bridge over the second narrows for railway and general traffic purposes, with approaches and railways connecting with existing lines of railway. The charter is owned by the cities of Vancouver and North Vancouver and surrounding municipalities. (Jan. pg. 18.)

Canadian Niagara Bridge Co.—A meeting of shareholders will be held at the Toronto, Hamilton & Buffalo Ry. offices, Hamilton, Ont., June 2, to elect officers and transact other business. E. D. Cahill is Secretary of the provisional directors. This is the company which proposes to build a new bridge across the Niagara River near Welland, Ont.

Dolly Varden Mines Ry.—A press report states that an agreement has been reached between the Dolly Varden Mines Co. and Taylor Engineering Co. of Vancouver under which all matters in dispute have been settled, actions withdrawn, and the application to the Dominion Government to declare the British Columbia legislation, under which the Taylor Engineering Co. obtained a title to the property, declared ultra vires, abandoned. (May, pg. 245.)

Esquimalt & Nanaimo Ry.—The Dominion Parliament has authorized the company to build a line from near the present terminus at Courtenay, on Vancouver Island, B.C., northerly and northeasterly to Duncans Bay, on the east coast of the island. (May, pg. 235.)

The Flinflon Mining Proposition and the projected railway.—A press report says that J. E. Hammell, one of the owners of the Flinflon mine in northern Manitoba, stated recently that $250,000 will be expended in development work during this year, and that before a return on the money invested can be obtained the total expenditure will amount to $10,000,000. The company will be in a position to guarantee an output of at least 2,000 tons if not 5,000 tons a day within three years. This guarantee will be forwarded to the Manitoba Government, which has promised to build a railway to the property at a cost of $2,700,000, the railway to be operated by Canadian National Rys. (April, pg. 177.)

Grand Trunk Pacific Ry.—We are officially advised that it is intended to invite tenders at an early date for the gravel fill into which the piling for the erection of the wharf for Salmon handling at Prince Rupert, B.C., will be driven; and for the construction of the dock, exclusive of the warehouse. The building of the warehouse is being held in abeyance at present. The dock will have a length of 860 ft. along the waterfront, and a width of 173 ft. It is to be built of creosoted piling, where piling is subject to the toredo, and of green piling on the shore side of the wharf, where piling is safe from marine borers. There will be a railway track along the front of the wharf, and two depressed tracks along the shore front. It is intended to provide for the accommodation of two Barlow elevators and for a gantry crane.

The warehouse will be 820 x 146 ft., within which will be a suspended office 58 ft. 4 in. bq 30 ft. 10 in. The warehouse will have a capacity of 350,000 cases of salmon, leaving a passage of 26 ft. in the centre, and two of 16 ft. each at the sides, or a capacity of 12,000 tons of ocean traffic, leaving similar passage ways. (April, pg. 175.)

Great Northern Ry.—A press report states that the company proposes to build a permanent station at Crescent Beach, B.C. A number of improvements to the highway approaches to the station site, including a subway under the tracks, were reported to be in progress May 6. (May, pg. 235.)

Hudson Bay Ry.—The Minister of Railways informed the House of Commons recently that the department had been advised by the Canadian National Rys. management that it is intended to renew a large number of ties, to do some surface ballasting, and other work on the line between Pas and the Kettle Rapids of the Nelson River, in order to continue operation on the line. (May, pg. 235.)

Kettle Valley Ry.—The Dominion Parliament has extended for five years the time within which the company may build the previously authorized line from near Grand Forks, B.C., to 50 miles up the north fork of the Kettle River; and from near Otter Summit to the Aspen Grove mineral district, 30 miles. The act also authorizes the company to build a line from near Coalmount on the joint section operated by the K. V. Ry. Co. and the Vancouver, Victoria & Eastern Ry. & Navigation Co., southerly to the Granite Creek coal areas, 12 miles. (May, pg. 235.)

Montreal Central Terminal Co.—A bill providing for an extension for five years of the time within which the company may build its projected tunnels or bridge or tunnel, under or over the St. Lawrence River, and lay out its projected terminals in Montreal, was read a second time in the Senate, May 10, and referred for consideration to the railway committee. On May 11 Hon. R. Dandurand called attention to the fact that on a former occasion the company's bill had failed to pass the railway committee on account of opposition raised by the Minister of Railways, and that he had been informed lately that the government had changed its attitude on the bill and would not now oppose it. Sir James Lougheed promised to ascertain what was the government's attitude to the bill, so as to be able to inform the committee in due time, but he had no knowledge that the government had altered its opinion on the bill since it was last before the Senate's railway committee. (Sept., 1919, pg. 432.)

Montreal, Joliette & Transcontinental Jct. Ry.—The Dominion Parliament has extended for five years the time within which the company may build its projected railway from Maisonneuve, Que., northerly through Hochelaga, L'Assomption and Montcalm counties in Joliette, thence north by northwest to St. Michel des Saints, and thence to Parent on the National Transcontinental Ry., 180 miles. (April, pg. 175.)

Northern Light Rys. Co.—The Ontario Legislature has passed an act incorporating this company. We are officially advised by the Canadian Light Rys. Construction Co., which is behind the project, that it is the intention to proceed immediately with building a 36 in. gauge railway from Elk Lake to Gowganda; Gowganda to Fort Mechewan; and also from Swastika through Kirkland Lake to Larder Lake, in Skead and Boston Tps. The line will have a 3% gradient as the maximum, 30 lb. rails and oil burning steam locomotives will be used. The surveys for the line between Elk Lake and Gowganda have been completed. J. K. McDonald is Chief Engineer, with office at Elk Lake, Ont. (May, pg. 235.)

Pabos, Amqui & Edmundston Ry.—The House of Commons railway committee reported April 29 that it was not in the public interest to proceed with a bill providing for the incorporation of the Pabos, Amqui & Edmundston Ry. Co. to build a railway from Pabos, Gaspe County, Que., to the Canadian National Rys. at Amqui, thence to Edmundston, N.B., with a branch from some point on the main line to Grand Valle, a seaport on the St. Lawrence River. The committee's report was adopted.

The promoters of the proposed company are all local men, and it was claimed that the projected railway would open up for development a large area of the Gaspe peninsula not now reached by railway or other means of transportation. The Minister of Railways objected to the passage of the bill on the ground that the line could not be built and maintained by an independent company, and that the government would inevitably have to take it over or to subsidize it. He thought that the day of subsidies had passed, and that if such railways were to be built the provinces interested should make themselves responsible for them as a factor in the development of natural resources. The General Manager of the Atlantic, Quebec & Western Ry. and the Quebec Oriental Ry. opposed the project on the ground that it would take traffic from his lines, as well as from the Canadian National Rys. His lines represent an investment of $8,000,000 of British capital, and are in danger of having to go into liquidation. Hon Rodolphe Lemieux and others supported the project, and it was alleged that the main opposition to the bill came from Robin & Co., a Jersey Island concern, which is "a replica on the Gaspe peninsula of the Hudson's Bay Co. in the west," and which seeks to control the country as the H. B. Co. did in the old days. The bill was defeated in the railway committee, April 29, by 31 votes to 29. (May, pg. 235.)

Pacific Great Eastern Ry.—A press report states that the British Columbia Government is arranging to put an engineering party in the field during the summer to make surveys for an extension of the line from the present projected terminus at Prince George, B.C., into the Peace River country. The original proposal was that the line should connect at the British Columbia-Alberta boundary with the Edmonton, Dunvegan & British Columbia Ry.

We are advised that the Canadian Bridge Co., Walkerville, Ont., has been given a contract for the steel work on the bridge across Deep Creek. It will consist of a deck plate girder viaduct of spans from 60 to 100 ft. long, on vents to a maximum height of about 255 ft. from the top of masonry to track level. A description of the bridge was given in Canadian Railway and Marine World, Dec., 1919, pg. 654. It is expected to begin during June and to have it completed by the autumn. (May, pg. 235.)

Quebec Central Ry.—We are officially advised that a contract has been let to J. T. and J. F. Davis, Montreal, for grading and masonry work on the line to be

built from Scotts on the main line, to a junction with the Canadian National Rys. about two miles west of St. Isidore. The length of the new line will be eight miles; work is to be started forthwith; the ballasting and tracklaying will be done by the company's own forces, and it is expected to have the line in operation by the autumn. The object of the construction is to give the company an entrance into Quebec City over the Canadian National Rys. and the Quebec Bridge. The construction work will be in charge of J. T. Morkill, Chief Engineer, Sherbrooke, Que., with F. H. Hibbard as Resident Engineer at Scotts.

We are further advised that no decision has been arrived at with regard to any further extension of the Chaudiere Valley branch from Lake Frontier to St. Pamphille, and that it is not likely that anything will be done for another year. (May, pg. 236.)

St. John & Quebec Ry. — The New Bruuswick Legislature has extended the time for the construction of the uncompleted northern section of this railway, and has provided for the granting of further aid towards the cost of construction. When these bills came before the committee of the legislature the Premier stated that the railway had been practically completed between Westfield and Centerville, except for some little finishing up work. An agreement had been made with the C.P.R. for running rights between Westfield and St. John, and Canadian National Rys. trains were being operated over the St. J. & Q. Ry. into St. John. With regard to the extension northerly from Centerville, the Premier stated that the Dominion Government was projecting a line from Meductic to the International Boundary, to connect with the Maine Central Rd., and if this were done the New Brunswick Government would no doubt extend the St. J & Q. Ry. from Centerville to Andover and ultimatedly to Grand Falls. In regard to the bill to provide further aid for the railway the Premier explained that it was to provide for expenditures not yet funded. (April, pg. 176.)

Timiskaming & Northern Ontario Ry. The Premier of Ontario, in introducing a bill to provide for the extension of the T. & N. O. Ry. in the legislature recently explained that it was simply to give the government power to proceed with construction when the opportune time comes. It was really intended as a notification to Quebec that it was the Ontario Government's intention to build the line, and as a guarantee to those who explore in the territory that the line will be built when the proper time comes.

The bill authorizes the T. & N. O. R. Commission to build and operate an extension of the railway from the present northern terminus at Cochrane northerly to James Bay, with such spurs and branches as may be necessary; the location of the extension and its branches to be subject to the approval of the Lieutenant Governor in council; the cost of the works authorized to be paid out of such sums as may from time to time be appropriated by the legislature. On the bill coming up for the second reading May 5, the Premier is reported to have said he was strongly of opinion that the T. & N. O. Ry. must ultimately find an outlet to James Bay, for if an Ontario railway does not reach the Bay a Quebec one will. The railway is at present a loss to the province, and two courses are open to the government, the first to make the line pay and the second to sell it to the Dominion Government. He did not agree with the second suggestion, but was in favor of retaining the line and so develop it as to make it a paying proposition.

Toronto, Hamilton & Buffalo Ry.—The Hamilton, Ont., City Council's railway committee is reported to have recommended the refusal of the company's application for permission to move its tracks northerly at the corner of John and Hunter Streets. (April, pg. 176.)

Prepayment of Freight from United States to Canada.

The New York Central Rd. (line Buffalo, N.Y., Clearfield, Pa., and east) and the West Shore Rd.'s Freight Traffic Department issued the following notice in April:

"Owing to the existing rate of exchange, prepayment of freight charges, including advance charges, if any, on all shipments of freight destined to points in Canada, will be required by the New York Central Rd. (line Buffalo, N.Y., Clearfield, Pa., and east) and West Shore Rd. on and after May 1, except that prepayment of freight charges will not be required on freight originating in the United States, in transit April 30."

All other railways in eastern U.S. territory issued similar notices.

The Delaware & Hudson Co. issued the following circular May 10:—"Because of the existing rate of exchange all freight and other charges must be prepaid, as follows, on all freight shipments consigned to Canadian destinations on and after May 1, 1920:

"All freight and other charges must be prepaid on shipments originating at points in the United States on and after May 1, 1920, to waybill destinations in Canada where joint rate from point of origin to such destination in Canada is applicable.

"All freight and other charges must be prepaid to Canadian gateway points (such as Rouses Point, Noyan Junction, Delson Junction, Buffalo, East Buffalo, Black Rock, Suspension Bridge, etc.), when combination rates based upon proportional rates or local rates from points of origin to such gateway points are applicable, except shipments routed via Grand Trunk Railway, on which all freight and other charges from point of origin to Canadian destination must be prepaid, regardless of how rates are based.

"Shipments originally consigned to points in the United States and reconsigned to points in Canada are subject to payment at time of reconsignment of all freight and other charges accruing between point of origin and Canadian destination or gateway as described in rules 1 and 2.

"Agents will refuse to accept shipments for transportation consigned to Canadian destinations unless above instructions are complied with. Agents at junction points will refuse to accept from connecting lines all shipments waybilled on and after May 1, 1920, unless all freight and other charges have been prepaid as outlined herein. Full report of such refused shipments must be immediately forwarded by wire to the General Freight Agent (Merchandise Freight), or to the Coal Freight Agent (Coal and Coke). This information should be given wide distribution among shippers and copy posted in a conspicuous place in each freight station."

The Interstate Commerce Commission issued the following at Washington May 18:—"Conference Ruling 207, which reads as follows: 'Payment for Transportation.—Nothing but money can be lawfully received or accepted in payment for transportation subject to the act, whether of passengers or property, or for any service in connection therewith, it being the opinion of the commission that the prohibition against charging or collecting a greater or less of different compensation than the established rates or fares in effect at the time, precludes the acceptance of services, property, or other payment in lieu of the amount of money specified in the published schedules,' is amended by adding at the end thereof the following: 'The existing difference in exchange value between the monies of the United States and Canada, while continuing to bear the same denomination, has been productive of confusion and uncertainy as to the construction to be placed upon tariff schedules, division sheets, and accounts in respect of traffic crossing the International Boundary. We are of opinion that where transportation of persons, or property, or transmission of intelligence by wire or wireless, takes place partly within the United States and partly within Canada, the tariff charges or divisions thereof accruing for the past which takes place within the United States are payable only in lawful money of the United States, irrespective of the money in which tariff charges or divisions thereof accruing for the part which takes place in Canada may be payable under the laws there in force. Adjustment should be made in accordance herewith, by carriers subject to the act, in settling their accounts with connecting carriers. Appropriate rules or regulations to give effect to this ruling may also be included by such carriers in their tariff schedules, if they so desire. The practice, which has grown up since development of said difference in exchange values, of requiring prepayment of charges in cases where not customarily required theretofore, tends to embarrass shippers and impede foreign commerce. Carriers subject to the act will be expected to refrain from such unusual requirements in cases where they are not justified by other considerations.'"

Grain Inspected at Western Points.

The following figures compiled by the Dominion Bureau of Statistics' Internal Trade Division, show the number of cars of grain inspected at Winnipeg and other points on the western division during April and during 8 months ended Apr. 30, 1920, and Apr. 30, 1919.

	Apr. 1920	8 mos. to Apr. 30, 1920	8 mos. to Apr. 30, 1919
Canadian National Rys.	5,764	44,981	42,188
Canadian Pacific Ry.....	4,109	63,032	58,770
Grand Trunk Pacific Ry..	1,303	18,367	13,675
Great Northern Ry. (Duluth)	4	495	760
Totals	11,180	126,875	115,393

The C.P.R. Club, Limited, has been incorporated under the Quebec Companies Acts with authorized capital of $10,000 and office in Montreal, to establish and maintain a club. The provisional directors are J. Beaudoin, J. E. Boisvert, E. Griot, A. Loiseau, J. Nadeau, and T. Barretta.

Bridgeburg-Buffalo Fares.—A press report states that the Bridgeburg, Ont., Town Council has appealed to the Board of Railway Commissioners against an increase of fares on the dummy motor car running between Bridgeburg, Ont., and Buffalo, N.Y. The commutation rate has been increased from 55c. to 75c. for a 10-trip ticket.

Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Canada Steamship Lines Ltd.—J. H. EDWARDS, heretofore chief clerk, Freight Claims Department, has been appointed Assistant Freight Claims Agent, C.S.L., and Northern Navigation Co. Office, Montreal.

E. S. SMILEY has been appointed Western Claims Agent, C.S.L. and Northern Navigation Co. and will handle all claims on traffic originating in, or destined to, points west of Sault Ste. Marie, Ont. Office, Winnipeg.

Canadian Pacific Ocean Services Ltd. A. W. SNELL, heretofore acting European Freight Agent, Montreal, has been appointed European Freight Agent. there. Office, Board of Trade Building.

Canadian National Rys.—S. D. DULMAGE has been appointed Sleeping and Dining Car Agent, Montreal, vice A. T. Landry, transferred.

J. B. JACKSON, heretofore dining car storekeeper, has been appointed sleeping and dining car agent, Calgary, Alta.

J. M. KERR, heretofore Assistant Master Mechanic, Montreal Division, Eastern Lines, Montreal, has been appointed Assistant Master Mechanic, Saguenay Division, Eastern Lines, vice T. S. Lowe, transferred. Office, Quebec, Que.

R. KING, heretofore relieving Superintendent, Kamloops, B.C., has been appointed acting Superintendent at Port Arthur, during the absence on leave of W. T. Moodie.

A. T. LANDRY, heretofore Sleeping and Dining Car Agent, Montreal, has been appointed Inspector, Sleeping, Dining and Parlor Cars there.

T. S. LOWE, heretofore Assistant Master Mechanic, Saguenay Division, Eastern Lines, Quebec, Que., has been appointed Assistant Master Mechanic, Montreal Division, Eastern Lines, vice J. M. Kerr, transferred. Office, Montreal.

J. F. McGUIRE has been appointed acting General Agent, Seattle, Wash., with territory covering Washington and Oregon States, reporting to Assistant General Freight and Passenger Agent, Vancouver, B.C.

W. L. STITT, heretofore Sleeping and Dining Car Inspector, has been appointed acting Sleeping and Dining Car Agent, Ottawa, Ont., C. H. Parr, Sleeping and Dining Car Agent there, having resigned to manage his father's hotel in Southport, Eng.

Owing to a mistake in makeup in our May issue the appointments of W. M. Neal, J. K. Savage, W. J. Uren and A. Williams were classified under Canadian National Rys., instead of under Canadian Pacific Ry. They are repeated under their proper heading in this issue.

Canadian Pacific Ry.—E. A. BARNWELL, heretofore Locomotive Foreman, Calgary, Alta., has been appointed Locomotive Foreman, Kamloops, B.C., vice J. W. Jackson transferred.

E. BOWIE, heretofore General Foreman, McAdam Jct., N.B., has been appointed Master Mechanic, Brownville Division, New Bruswick District, vice W. Wright, transferred. Office, Brownville Jct., Me.

G. D. BROPHY has been appointed District Passenger Agent, Banff, Alta., vice A. L. Powell, resigned.

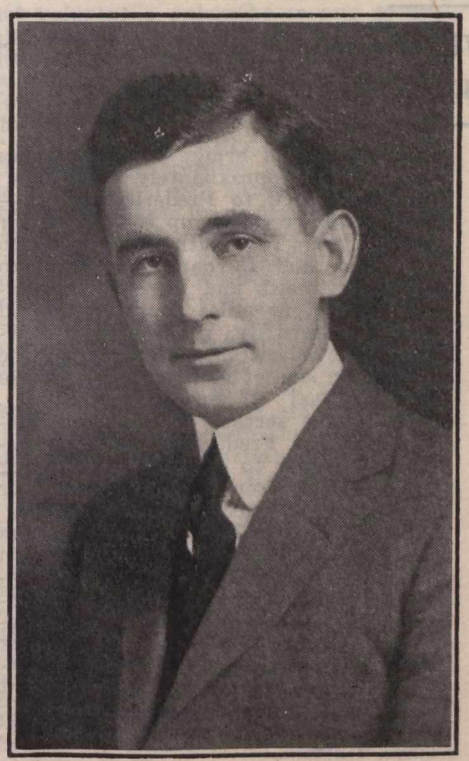
A. E. EDWARDS has been appointed Locomotive Foreman, McAdam, N.B., vice R. A. Miller, promoted.

JOHN HALSTEAD, Division Freight Agent, Calgary, Alta., has been appointed Division Freight Agent, Winnipeg, vice A. T. McKean, transferred.

J. W. JACKSON, heretofore Locomotive Foreman, Kamloops, B.C., has been appointed Locomotive Foreman, Calgary, Alta., vice E. A. Barnwell, transferred.

W. McILROY, heretofore chief clerk, District Passenger Agent's office, Toronto, has been appointed General Agent, Passenger Department, Detroit, Mich., vice M. G. Murphy, resigned to enter private business.

A. T. McKEAN, Division Freight Agent, Winnipeg, has been appointed Division Freight Agent, Calgary, Alta., vice John Halstead, transferred.



John R. Caswell,
Division Engineer, C.P.R., Sudbury, Ont.

R. A. MILLER, heretofore Locomotive Foreman, McAdam, N.B., has been appointed General Foreman there, vice E. Bowie, promoted.

W. M. NEAL, heretofore Assistant General Superintendent, Quebec District, Montreal, has been appointed Assistant General Superintendent, Ontario District, vice J. K. Savage, promoted. Office, Toronto. Through an error in make-up this appointment appeared under Canadian National Rys. in the May issue.

B. J. QUILTY has been appointed Assistant Superintendent, Sudbury Division, Ontario District, vice R. B. Girouard, transferred. Office, Sudbury, Ont.

J. K. SAVAGE, heretofore Assistant General Superintendent, Ontario District, Toronto, has been appointed General Superintendent, Quebec District, vice J. M. Woodman, transferred. Office, Montreal.

W. J. UREN, heretofore Superintendent, Farnham Division, Quebec District, Farnham, Que., has been appointed Assistant General Superintendent, Quebec District, vice W. M. Neal, transferred. Office, Montreal. Through an error in make-up, this appointment appeared under Canadian National Rys. in the May issue.

A. WILLIAMS, heretofore Superintendent, London Division, Ontario Distract, London, Ont., has been appointed Superintendent, Farnham Division, Quebec District, vice W. J. Uren, promoted. Office, Farnham, Que. Through an error in make-up this appointment appeared under Canadian National Rys. in the May issue.

J. H. WILSON has been appointed Locomotive Foreman, John St., Toronto, vice R. V. Carleton, transferred.

Delaware & Hudson Co.—Consequent on the U.S. Government's control having ceased, the company has appointed officers for its railway, including, among others, the following:—

F. P. GUTELIUS, Vice President in Charge of Operation and Traffic, Albany, N.Y.

C. S. SIMS, Resident Vice President, Montreal.

The officials named occupied similar positions up to the time the railway was taken over by the U.S. Railroad Administration.

Grand Trunk Ry.—J. COLEMAN, heretofore Superintendent, Car Department, has been appointed Assistant to General Superintendent, Motive Power and Car Department, and his former position has been abolished. Office, Montreal.

F. FOUSE, heretofore Master Car Builder, London shops, Ont., has been appointed Master Car Builder, Montreal shops, vice W. A. Pitt, promoted.

T. M. HYMAN, heretofore Assistant Foreman, Montreal shops, has been appointed Master Car Builder, London, Ont., shops, vice F. Fouse, transferred.

C. R. MOORE, heretofore Assistant to Vice President, has been appointed General Superintendent of Car Service, vice J. E. Duval, deceased. Office, Montreal.

C. F. NEEDHAM, heretofore Mechanical and Electrical Engineer, has been appointed Assistant to General Superintendent, Motive Power and Car Department. Office, Montreal.

W. A. PITT, heretofore Master Car Builder, Montreal shops, has been appointed General Master Car Builder, and has also assumed the duties heretofore performed by the Superintendent, Car Department, which position has been abolished. Office, Montreal.

Grand Trunk Pacific Ry.—F. CLARK, heretofore Locomotive Foreman, Melville, Sask., has been appointed Locomotive Foreman, Prince George, B.C., vice A. T. Hannah, transferred.

A. T. HANNAH, heretofore Locomotive Foreman, Prince George, B.C., has been appointed Locomotive Foreman, Melville, Sask.

J. A. C. KELMAN, heretofore circuit manager, has been appointed telegraph supervisor, Central and Western Divisions, vice R. M. MacMillan, promoted. Office, Winnipeg.

R. M. MacMILLAN, heretofore Telegraph Traffic Supervisor, Central and Western Divisions, has been appointed Divisional Superintendent of Telegraphs, and Superintendent of Time Service, Central Division, with jurisdiction over all matters appertaining to construction and maintenance of telegraph and telephone lines, operation of railway and commercial telegraphs and of time service, vice

F. T. Caldwell, resigned to enter other service. Office, Winnipeg.

Great Northern Ry.—F. A. LEYFIELD, formerly in Northern Pacific Ry. service, Vancouver, and in military service overseas, and latterly in Pacific Great Eastern Ry. service, has been appointed Contracting Freight Agent, G.N.R., Vancouver, B.C.

Greater Winnipeg Water District Ry. J. H. ASHDOWN, one of the commissioners of the Greater Winnipeg Water District, is acting as chairman of the commission, which, among its other activities, owns and operates the Greater Winnipeg Water District Ry., the former chairman, R. D. Waugh, having gone to France as a member of the Saar Valley Commission, appointed by the allied powers; his position being Commissioner in charge of finance and supplies.

Kettle Valley Ry.—J. J. WARREN, having resigned as President, has been elected Chairman of the Board.

D. C. COLEMAN, Vice President, Western Lines, C.P.R., Winnipeg, has also been elected President, K.V.R., succeeding J. J. Warren, resigned on account of pressure of other business.

Michigan Central Rd.—A. J. MITCHENER, heretofore General Foreman, passenger car shop, St. Thomas, Ont., has been appointed Divisional General Car Foreman, Canada Southern Division, vice E. H. Wood, promoted. Office, St. Thomas, Ont.

E. H. WOOD, heretofore Division General Car Foreman, Canada Southern Division, St. Thomas, Ont., has been appointed Master Car Builder, Detroit, Mich., vice J. T. Downs, promoted.

Pacific Great Eastern Ry.—ROBERT WILSON, Auditor, has been acting as General Manager, since G. E. MacDonald's resignation, which was mentioned in Canadian Railway and Marine World for May.

Rutland Rd.—T. M. FALLOM has been appointed City Passenger Agent, Montreal.

S. LEBORVEAU has been appointed Canadian Passenger Agent, Montreal.

Canadian National Railways Construction, Betterments, Etc.

Sydney Dry Dock Spur.—We were officially advised May 7 that construction would start in the near future on the spur line to the site of the projected dry dock at Sydney, N.S., and that the spur will be completed in the autumn. The track to be built, including the main spur and sidings, will be 5,300 ft. The siding is to be built on the usual standard siding agreement basis, the lesee being the Sydney Foundry & Machine Co.

New Glasgow Station.—Tenders were received to May 31 for the extension of and alterations to New Glasgow, N.S., station.

Salt Springs Station.—Tenders were received to May 24 for the erection of a frame station building and platforms at Salt Springs, N.S.

St. John Station and Yards.—A press report states that the St. John, N.B., City Council has been advised that an appropriation of $1,000,000 has been made for preliminary work on the new station and extension of yards at St. John, N.B. The station plans have not been submitted, but it is said that the layout will provide for eight new tracks at the present grade, and a viaduct on Mill St., to carry the electric railway and general traffic over the railway approach. The present station building will be used until the new building is sufficiently advanced to permit the old one to be taken down. The yards are to be considerably extended, and it is stated a large area of land has been expropriated for the purpose.

Fredericton Improvements.—A press report states that C.N.R. officials discussed with Fredericton, N.B., city officials recently plans for the construction of a new bridge across the St. John River, a new location of the tracks through the city and other improvements. The new bridge will, it is said, be about 50 ft. south of the present structure, and the approach will be so arranged as to permit of the present station being used. A subway will be provided under the approach near the junction of Queens and Brunswick Streets with Waterloo and University Ave. It is expected that work on the bridge will be started this year, and that it will be ready for use by the end of 1921. The estimated cost of bridge and approaches is said to be approximately $2,000,000.

McGivney Jct. to Fredericton, N.B.—Tenders were received up to May 25 for grading near Taymouth, mile 89.94 to 92.80; and naer Durham, mile 95.32 to 96.51. Taymouth and Durham are stations about four miles apart on the old Canada Eastern Ry., running from Newcastle to Fredericton, N.B., and on the Fredericton side of McGivney Jct., where the National Transcontinental Ry. crosses. The section of line from McGivney Jct. to Fredericton is being improved in order to carry the increasing through traffic from the N. T. Ry. over the St. John & Quebec Ry. to St. John.

Railway Section Dwellings. — Tenders were received to May 26 for the erection of railway section dwellings at the following points on the National Transcontinental Ry. in Quebec:—La Tuque Subdivision—Gouin, Fitzpatrick. Fitzpatrick Subdivision—Cressman, Joybert, Weymount, Crespel, Ferguson, Casey. Parent Subdivision—Greening, Langdale, Monet, Bolger. Doucet Subdivision — Doucet, Fisher, Uniacke.

Branch Line to Oka, Que. — Senator Boyer enquired in the Senate May 5:—"Did any officials of the Railways Department or of the Canadian National Rys. attend, during 1919, a banquet at the Trappist monastery at Oka and promise that a branch line of the National Ry. would be built from the Freniere station to the monastery?" Sir James Lougheed answed: "No."

Ontario District Concrete Work.—We are officially advised that the following are the various concrete works in the Ontario District for which tenders were invited recently:—Pembroke Subdivision—Abutments and pedestals, mile 82.4. North Bay Subdivision—Two 10 x 15 ft. f. t. culverts; mile 100.9, abutments and pedestals. Sudbury Subdivision — Mile 7.6, 10 x 15 ft. f. t. culverts; mile 115.6, 6 x 7 ft. f. t. culverts; mile 120.5, two 5 x 15 ft. f. t. culverts. Ruel Subdivision—Mile 6.2, 5 x 12 ft. f. t. culvert; mile 94.7, 10 x 15 ft. f. t. culvert; mile 126.5, two 8 x 12 ft. f. t. culverts. Long Lake Subdivision—Mile 17.9, 4 x 12 ft. f. t. culvert; mile 111.7, abutments. Nipigon Subdivision—Mile 21.4, abutments; mile 21.9, 10 x 15 ft. f. t. culvert; mile 45.2, two 5 x 15 ft. f. t. culverts; mile 79.8, abutments.

Port Arthur Station.—Tenders have been invited for the construction of an express building at Port Arthur, Ont. A press report states that the new structure will probably be erected at the west end of the station and that it will be 80 or 100 ft. long.

Western Lines Buildings, Etc.—Tenders were received to May 25 for the construction of the following works:—

Port Arthur, Ont.—Express building; standard 75 ft. ash pit.

Rainy River, Ont.—Standard 75 ft. ash pit.

Winnipeg.—Office extension to store building, west yard.

Transcona, Man.—Alterations and additions to coach paint shop.

Dauphin, Man.—Turntable foundation.

Swan River, Man.—Standard 5-stall engine house.

Kamsack, Sask.—Two standard 75 ft. ash pits; turntable foundation.

Humboldt, Sask.—Standard 75 ft. ash pit; turntable foundation.

Prince Albert, Sask.—Extension to station building; 3-stall addition to engine house.

North Battleford, Sask.—Standard 75 ft. ash pit.

Hanna, Alta.—Standard 75 ft. ash pit.

Tenders were received recently for the erection of 225 track miles of wire fencing; for reinforced concrete culverts near Winnipeg, on the Regina, Saskatoon and Kindersley Subdivisions, Sask., and on the Hanna Subdivision, Alta.; and for the construction of a subway at Athabasca St., Moose Jaw, Sask.

Lampman Coal Fields.—A press report states that it is expected construction will be started at an early date on a line from Lampman coal fields just across the Saskatchewan-Manitoba boundary.

Bengough-Fife Lake Extension. — A press report states that it is expected to build about 12 miles of the projected extension of the Bengough line towards Fife Lake, Sask., this year, and that an engineering party was in the field all winter making surveys.

Western Lines Construction.—Tenders will be received to June 1 for grading and culverts on the following lines:—Prince Albert, Sask., northeasterly extension; Tuurtleford - Meeting Lake extension, Sask.; Maryfield, Sask., extension; Acadia Valley extension, Alta.

Pacific Coast Terminals.—A press report states that at a recent conference of representative of Vancouver and other points with the Minister of Railways regarding the Canadian National Rys. terminals at Vancouver, the Minister stated that it was intended to proceed with the plans for the railway terminals at a cost of several million dollars and that the plans had been under consideration for some time. It is said that in connection with the carrying out of the plans there will be a revision of the agreement entered into between the city and the Canadian Northern Ry. (May, pg. 226.)

Calgary C.P.R. Employes Local Club. The following officers were elected at the annual meeting, May 11: President, A. P. Thompson; Vice President, I. Harrison; General Secretary, V. Cawley; Financial Secretary, H. B. Bridges; Athletic Secretary, J. McRoberts; Treasurer, G. H. Carter. An executive committee of the different departments was appointed.

The C.P.R. Refused Permission to build to Birch Lake.

The C.P.R. Co. made application to the Dominion Parliament recently for an act to authorize a number of branch lines in Saskatchewan and Alberta, including one from a point on the Pheasant Hills branch at or near Cory, in Tp. 36, ranges 5 or 6, west of the third meridian, northwesterly to at or near Birch Lake in Tps. 51 and 52, ranges 15 and 16, west of the third Meridian, Saskatchewan.

When the bill came before the House of Commons railway committee, April 20, the Minister of Railways announced that the Canadian National Railways had completed plans for a line over the same territory as that proposed to be served by the line projected by the C.P.R. from Cory to Birch Lake, and that provision had been made in the estimates for construction to be started this summer. There was, according to reports of the discussion in the committee, no doubt as to the necessity for the construction of the line in question, and both the Minister of Railways and D. C. Coleman, Vice President Western Lines, C.P.R., agreed that there was not room for two lines through the territory. It therefore became a question which of the two should be authorized. Hon. George Langley, Minister of Municipal Affairs for Saskatchewan, made a strong appeal for granting the power asked for, and when the matter came before the committee April 27 the Minister of Railways stated that $100,000, which was in the estimates for this year, would be spent in grading on the line, and that track would be laid in 1921. D. B. Hanna, President Canadian National Rys., stated that the construction of this line was a pre war promise, and was on the C.N.R. programme long before the C.P.R. had contemplated going there. The C.N.R. management was strongly opposed to any other company serving the territory when all plans had been laid. The C.P.R. might be much better employed attending to other territories where a government owned road was not contemplated. The C.P.R. had waited in the Drumheller district until the C.N.R. had developed the area, and then wanted to reap the fruits of another company's labors. D. C. Coleman is reported to have said that the C.P.R. would have gone ahead with work on this line last year but for the serious labor troubles in Winnipeg. The company proposed to go ahead with all lines for which powers were asked, as fast as possible. After a lengthened discussion the committee, by a vote of 40 to 29, struck the section out of the bill.

On returning to Winnipeg from Ottawa, after the House of Commons railway committee had refused to pass a portion of the C.P.R.'s bill to authorize it to build certain branch lines, D. C. Coleman, Vice President Western Lines, is reported to have said: "The news dispatches sent out from Ottawa at the suggestion of interested parties gave an altogether wrong impression as to the issues involved. The C.P.R. asked for the right to build a railway from Saskatoon to Birch Lake, in northern Saskatchewan. There was no request for a subsidy or assistance of any kind. All that we desired was the charter to construct. This proposed line does not parallel any existing lines of the Canadian National Rys. It does not parallel any proposed lines of the Canadian National Rys. for which it holds charters. It crosses the two lines the Canadian National had constructed and the one line for which it holds a charter at almost right angles. However, it apparently did conflict with plans of future construction which Canadian National officers had been thinking about, but as they had made no announcement whatever previous to the application, the settlers who were asking for our line and the C.P.R. may be pardoned for assuming that these plans were hastily conceived, after it was announced that the C.P.R. proposed to go into the territory.

"It was argued that as the Canadian National had been operating the only lines north of the North Saskatchewan River in Saskatchewan all the country north of the river should be regarded as Canadian National territory, and that the competing railway should not be allowed to build in, even though it was established that the Canadian National had left large tracts of country altogether unserved and neglected. The C.P.R. will not voluntarily subscribe to any principle of division of territory. The Canadian National Rys. has every right to built into territory in southern Saskatchewan and southern Alberta, which has in the past been exclusively served by the C.P.R., and as a matter of fact has been and is now exercising that right. We do not ask, and will not ask, for authority to construct lines paralleling other railway lines, but we do claim that in ordinary fairness we should be allowed to build into the territory north of our existing lines, providing that it can be established that such lines are necessary to provide service to settlers and to promote further settlement and development.

"The C.P.R. is willing to provide the capital to construct such branch lines, is quite content that there should be every protection against wasteful parallel construction, and submits that it is not fair and not reasonable to deny it the right to build merely because the officers of a competing railway feel that at some future time, when the financial condition of the country justifies it, they may desire to build lines with which the C.P.R. construction plans might possibly conflict. The construction policy of both companies should be to promote production, to increase the population and to avoid waste and the C.P.R. is willing that its programme should at all times conform to such a policy."

Timiskaming & Northern Ontario Railway Commission Estimates.

Further supplementary estimates for the year ending Oct. 31, 1920, submitted to the Ontario Legislature recently, contained the following items:—

General surveys and investigations (re-vote)	$25,000.00
Change of line for reduction of grade and curvature (re-vote)	10,000.00
Widening cuts and fills	10,000.00
Additional weight of rail and improved fastenings	45,000.00
Additional track material (re-vote $12,000)	100,000.00
Replacing timber bridges and culverts (re-vote $34,008.52)	75,000.00
Public and private road crossings (re-vote $2,800)	3,000.00
Additional yard tracks (re-vote $20,-523.87)	40,000.00
New sidings and spur tracks (re-vote $34,500)	60,000.00
Roadway machinery and tools (re-vote $3,000)	10,000.00
Fencing right of way (re-vote)	25,073.05
North Bay maintenance of way, general repair and carpenter shops (re-vote $2,000)	6,000.00
Employes' dwellings (re-vote $13,-435.02)	20,000.00
Cochrane—Baggage and express buildings, platforms, etc. (re-vote $10,-440.05)	15,500.00
Heating, plumbing and electric lighting in existing dwellings and stations (re-vote $3,500)	9,200.00
North Bay extensions and alterations, stores, buildings	35,000.00
North Bay—Freight car repair shed (re-vote	10,000.00
New Liskeard—Freight shed	20,000.00
Swastika—Completion station	4,000.00
Dane—Extension station	1,000.00
Elk Lake, Timmins, Iroquois Falls—Ice houses	5,000.00
Station buildings to provide accommodation at settlements without such facilities	4 500.00
Water stations, additions and improvements (re-vote)	20,000.00
Improvements—Station grounds	2,000.00
Fire protection—Iroquois Falls	4,000.00
North Bay and Englehart coaling plants (re-vote $30,000)	60,000.00
North Bay—Shop tools	45,000.00
Live Stock pens—locations not specified	2,500.00
Snow fences	3,500.00
Additional telephone circuits between North Bay and New Liskeard	20,000.00
Renewing telegraph and telephone pole line equipment and stringing circuit, Matheson to Porquis Junction	5,000.00
Five metallic telephone circuits—Swastika to Kirkland Lake	2,500.00
Telephone line—Cobalt to Porquis Jct.	25,834.60
Additional locomotives	225,000.00
Locomotives—Superheaters, coal boxes, etc. (re-vote $25,000)	69,500.00
Passenger train cars—betterments (re-vote $600)	5,000.00
Freight train cars, betterments	10,000.00
Work equipment—additional and betterments (re-vote)	14,500.00
Nipissing Central Ry.—Car barn enlargement (re-vote)	2,000.00
Nipissing Central Ry.—Haileybury harbor, increased facilities(re-vote)	8,165.18
	$1,057,772.83

Canadian Railway Club's Officers, Etc.

The Canadian Railway Club, at its annual meeting in Montreal, May 13, elected the following officers:—

President—W. H. Winterrowd, Chief Mechanical Engineer, C.P.R., Montreal. First Vice President—C. H. N. Connell, District Engineer, Canadian National Rys., Quebec, Que. Second Vice President, W. H. Sample, General Superintendent Motive Power and Car Departments, G.T.R., Montreal. Executive Committee—A. Crumpton, Valuation Engineer, G.T.R.; E. R. Battley, Superintendent Motive Power, Eastern Lines, G.T.R.; R. A. Pyne, Superintendent Motive Power, C.P.R.; H. R. Naylor, Assistant Works Manager, Angus Shops, C.P.R.; B. F. Shortley, Superintendent Terminals, Canadian National Rys.; C. P. Price, Electrical Superintendent Canadian National Rys., Montreal.

Secretary—W. A. Booth, Engineer Locomotive Construction, G.T.R., Montreal. Treasurer—E. E. Lloyd, Auditor of Disbursements, C.P.R., Montreal.

Indian Aerial Tramways.—Projects for the construction of aerial tramways of ropeways, for public traffic in India, are under consideration by the Government Railways Board. In the board's report for 1919 it is stated that this system of transportation is well established in India, for mining and other private industrial enterprises, but has not been used for public service. It is considered that experience in other countries has proved this system suitable for the opening up of mountainous districts, where the cost of railways and roads would be prohibitive, and there is a wide field for its employment for this purpose in India. As there is difficulty in securing engineers, with experience in this line of work, the board is arranging to have an officer trained specially in aerial tramway construction.

Freight and Passenger Traffic Notes.

The Reid Newfoundland Co.'s regular tri-weekly train service between St. John's and Port Aux Basques, Nfld., is reported to have been resumed May 12.

Representatives of seven railway companies doing business on the British Columbia coast, and a representative of the British Columbia Electric Ry., forming a sub-committee of the Railway Association of Canada, met in Vancouver, B.C., May 14, with F. W. Peters, C.P.R., as chairman.

The Minister of Railways stated in the House of Commons recently that there was no truth whatever in the report that train service on the Hudson Bay Ry. from Pas, Man., was to be discontinued. About 214 miles of the line had been in operation up to that time and it was intended to operate trains on this mileage the same as last year.

The Edmonton, Dunvegan & British Columbia Ry. Co. is reported to have applied to the Board of Railway Commissioners for authority to increase its passenger and freight rates. It is asked that the railway be treated as a colonization railway; and that the rates be fixed sufficiently high to enable operation and fixed charges to be met. It is stated that the increase asked is to be temporary, and that rates will be lowered from time to time as traffic increases.

The C.P.R. will operate three through trains between Quebec and Montreal in each direction, beginning June 6, the new trains being known as the Frontenac Limited and the Viger Limited, and will run daily during the summer season, while the third train will be run on week days only. Trains will leave Palais station, Quebec, at 7.50 a.m., except Sunday, 2 p.m. daily, and 10.45 p.m. daily, and will leave Montreal at 7.50 a.m., except Sunday; 4.10 p.m., daily; and 10.45 p.m. daily.

The Canadian National Rys. put in operation on May 3 the summer schedule for the operation of traffic via the car ferry between New Brunswick and Prince Edward Island. The car ferry leaves Borden, P.E.I., at 9.30 a.m., and 5.05 p.m. daily except Sundays, reaching Tormentine, N.B., at 10.20 a.m. and 6 p.m. The ferry leaves Tormentine at 3 p.m., and 7.40 p.m., arriving at Borden at 3.50 p.m. and 8.30, thus making two round trips a day. Trains leaving St. John, N.B., at 7.10 a.m. and 1.15 a.m. connect at Sackville at 12.28 p.m. and 5.50 p.m. with trains for Tormentine, as also do the 9.25 a.m. and 7 p.m. trains from Montreal. The ferry train from Tormentine connects at Sackville with trains for Moncton, St. John and Montreal. Trains are also run on Prince Edward Island in connection with the ferry service.

The Quebec Court of King's Bench, sitting at Montreal, delivered judgment April 26, in an appeal of the G.T.R. against a decision of the Superior Court giving the Central Fruit Auction Co. $5,150.21 said to be due under certain traffic arrangements and a lease of certain G.T.R. premises in Montreal, and ordering the G.T.R. to execute a draft agreement, embodying the verbal understanding arrived at. The G.T.R. appealed against the decision on the ground that the employes who were alleged to have made the agreement had no authority to conclude any agreement, and were merely negotiating an agreement which had to be accepted and executed before it became binding; that the draft agreement had been rejected by the company's executive officers, and that therefore there was no contract or agreement. The Superior Court found that the G.T.R. having acted on the verbal understanding arrived at and set forth in the draft agreement constituted an adoption and notification. The King's Bench Court, after hearing arguments, held that there had not been a ratification or adoption of the verbal understanding by the G.T.R. that would bind it to a 10 years contract, and that the G.T.R. was justified in putting an end to the payment of any allowance for train track traffic. The G.T.R. gave notice, Aug. 30, 1916, that the payment would cease from and after Oct. 1 of this year, and tendered an amount up to that date. The G.T.R.'s appeal was maintained, the Superior Court's judgment was reversed, and the amount of the tender was declared to be sufficient.

Railway and Steamship Terminal for Sydney, N.S.

Canadian Railway and Marine World for May contained on pg. 232 some information in regard to work to be done by the Dominion Public Works Department at Sydney, N.S. We have since been favored by the department with the following information:—The proposed work will be situated near the old railway pier, at Barrack Point. The wharf will be 540 x 74 ft., with a berth on each side 30 ft. deep at low tide, and 100 ft. wide by 350 ft. long. There will also be a berth on each side, at the inner end, 20 ft. deep at low tide and 100 ft. wide by 150 ft. long. The wharf shed will be 450 x 40 ft., with a 4 ft. platform on each side at the same level as the freight car floor. There will be a railway track on each side of the wharf, with 3 ft. clear way between a box car and the outside edge. The wharf will consist of 13 concrete cribs, filled in with earth, and the approach from the shore will be an earth embankment 74 ft. wide. Two railway tracks will extend out over the embankment to each side of the wharf, and a wagon road will lead from the wharf along the shore to George St. There will be a connection with the city water supply and a hydrant at the end of wharf.

Electric Railways Transferred to Canadian National Railways.

Hon. J. A. Calder gave the following information in the House of Commons recently, in answer to questions:—

The actual paid up capital of the Toronto Eastern Ry., on Sept. 27, 1918, was $250,000.00. The provisional officers were: President, W. H. Moore; Vice President, A. J. Mitchell; other directors: R. G. O. Thompson, H. S. Gausby, and E. R. Gossett. As the railway was not in operation there was no general manager. As the Canadian Northern Ry. acquired all the company's assets, by assuming the cost of construction, there was no actual cash transaction between the companies.

The actual paid up capital of the Toronto Suburban Ry., on Sept. 27, 1918, was $1,500,000.00. The officers were:—President, Sir Wm. Mackenzie; other directors: L. W. Mitchell, F. H. Phippen, and G. C. Royce; General Manager, G. C. Royce. As the Canadian Northern Ry. acquired all the company's assets, by assuming its liabilities, there was no actual cash transaction between the companies.

United States Railway Notes.

The American Railroad Association's Committee on car service reported May 13 that 235,000 freight cars were tied up or delayed in transit, of which 85,000 were at junction points, with no labor to transfer them.

The U.S. Senate Interstate Commerce Committee agreed, on May 12, on legislation designed to aid railways and shippers in the car shortage situation, by extending the $300,000,000 revolving fund from 5 to 15 years and also by amending the law in other respects.

W. D. Hines, ex Director General of Railways, U.S. Railroad Administration, has been designated by President Wilson, as U.S. representative in Europe, to enforce the terms of the peace treaty, relating to waterways of various signatory countries.

Canadian National Railways Earnings.

	1920	1919
January	$ 7,726,562	$ 6,787,517
February	6,516,059	6,265,562
March	7,761,326	7,160,036
April	8,207,478	6,936,635
	$29,752,425	$27,149,750

Approximate earnings for 3 weeks ended May 21, $5,915,971, against $5,405,541 for same period 1919.

Canadian Northern Railway System.

	1920	1919
January	$4,200,700	$4,026,000
February	3,862,300	3,363,800
March	4,587,700	3,554,350
	$12,650,700	$10,944,150

Canadian Pacific Railway Earnings, Expenses, Etc.

Gross earnings, working expenses, net earnings, and increases or decreases, from Jan. 1, 1920, compared with those of 1919:

	Gross	Expenses	Net	Increases or decreases
Jan.	$13,914,569	$13,328,628	$585,941	*$967,571
Feb.	13,557,104	12,843,231	713,873	*267,242
Mar.	15,715,937	13,758,173	1,957,764	418,721
	$43,187,610	$39,930,032	$3,257,578	*$816,092
Inc.	6,720,933	7,537,025	.....	.....
Decr.	.....	.....	$816,092	.....

Approximate earnings for April, $15,586,000, and for two weeks ended May 14, $7,096,000, against $12,780,000 and $5,815,000 for same period 1919.

Grand Trunk Railway Earnings, Expenses, Etc.

Gross earnings, working expenses, net earnings, and increases or decreases, from Jan. 1, 1920, compared with those of 1919:

	Gross	Expenses	Deficit	Increase
Jan.	$ 5,054,034	$ 5,867,445	$ 813,411	$ 97,406
Feb.	4,660,831	5,159,742	498,911	188,987
Mar.	5,756,372	5,491,293	265,079	575,215
	$15,471,237	$16,518,480	$1,047,245	$ 861,608
Incr.	1,467,387	2,328,995	861,608	.....

Approximate earnings for April, $5,478,080, and for three weeks ended May 21, $4,625,569, against $5,357,537, and $4,413,626 for same periods 1919.

Sir Donald Mann Had No Private Car. P. F. Casgrain, M.P. for Charlevoix-Montmorency, Que., asked in the House of Commons recently:—"1. Did Sir Donald Mann have a private car? 2. If so, was it taken over by the government when it bought the Canadian Northern Ry.? 3. If not, why?" The Minister of Railways answered the first question, "No."

Canadian Railway AND Marine World
ESTABLISHED 1898.

Devoted to Steam and Electric Railway, Marine, Shipbuilding and Railway, Harbor and Canal Contractors' Interests.

Official Organ of various Canadian Transportation Associations.

Published on the first of each month.

Acton Burrows, Limited, Proprietors, 70 Bond Street, Toronto, Canada.

ACTON BURROWS, President and Editor.

AUBREY ACTON BURROWS, Business Manager.

Assistant Editors, JOHN KEIR and DONALD F. KEIR

United States Business Representative, A. FENTON WALKER, 143 Liberty St., New York.

Member of Associated Business Papers, Audit Bureau of Circulations Canadian National Newspapers and Periodicals Association, Canadian Press Association,

Authorized by the Postmaster General for Canada, for transmission as second class matter.

SUBSCRIPTION PRICE, including postage anywhere, $2 a year in advance.

SINGLE COPIES, 25 cents each, including postage.

The best method of remitting is by express or post office money order. If remittance is made by cheque, 15 cents should be added to cover cost of collection unless cheque is payable at par in Toronto or Montreal.

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TORONTO, CANADA, JUNE, 1920.

PRINCIPAL CONTENTS.

Canadian National Railways Receipts and Expenditures.

Sir James Lougheed gave the following information in the Senate May 7, in answer to questions by Senator McSweeney. The receipts of the Intercolonial Ry. for the year ended Mar. 31, 1920, were $28,-104,733.66, and the operating expenses were $30,908,505.18.

The receipts of the National Transcontinental Ry. between Moncton and Winnipeg for the year ended Mar. 31, 1920, were $11,592,718.72, and the operating expenses were $14,584,250.06.

The receipts of the Canadian Northern Ry. System for the year ended Mar. 31, 1920, were $53,562,177.57, and the operating expenses were $60,034,023.92.

The receipts of the Grand Trunk Pacific Ry., now in the hands of a receiver, were, for the calendar year 1919, $12,-251,462.13, and the operating expenses were $17,587,567.37. The figures from Jan. to Mar., 1920, had not been ascertained up to May 7.

Grand Trunk Railway Acquisition Act Passed.

Assent was given in the Senate, May 11, to a number of acts passed by the Dominion Parliament, including the one for the confirmation of an agreement dated Mar. 8, 1920, for the acquisition by the Dominion Government of the G. T.R. capital stock, excepting the 4% guaranteed stock. The act consists of two sections, the first correcting in two details the agreement, and the second ratifying and confirming the agreement as so amended, and a schedule containing the agreement. The two sections were given in full in Canadian Railway and Marine World for May, pg. 251. The bill passed its final stage in the Senate May 7, there being only a formal discussion with reference to undisclosed claims and the position of employes who went on strike in 1910 with regard to the Pension fund.

D. B. Hanna Sues F. S. Cahill for Slander.

A civil action in which D. B. Hanna, President Canadian National Rys., asks for $50,000 for slander, alleged to have been contained in the remarks of F. S. Cahill, M.P., before the Reform Club of Montreal, in April, has been commenced, and Mr. Cahill has been served with notice of the suit.

The statement of claim in connection with the action has arrived in the city. It sets forth that, by the remarks of Mr. Cahill, it was indicated that Mr. Hanna had acted in a fraudulent manner and in violation of his mandate and duty to the public and Dominion of Canada. It also sets forth that the remarks of Mr. Cahill were false, malicious and defamatory, and constituted a slander of the most damaging character, reflecting on Mr. Hanna's character and integrity and subjecting him to the loss of public confidence. Mr. Hanna's claim is for $50,000 and interest and costs of the action, and he asks that, in default of payment, Mr. Cahill be subjected to coercive imprisonment.

The statement of claim is a bulky document, and contains reports of Mr. Cahill's remarks in several daily papers, which assert that Mr. Cahill said that Mr. Hanna was putting the Canadian National Rys. into the hands of Sir William Mackenzie and Sir Donald Mann, that Sir William and Sir Donald were selling coal, ties and other supplies to the C.N.R. and that the government had been "stung" for $140,000,000 in connection with the Canadian National Rys. The statement of claim says: "The said charges imply a dereliction of duty on the part of the plaintiff as director and President of the C.N.R., and as operating and managing the Canadian National Rys."

Bisaillon & Beique, Montreal, are acting for Mr. Hanna.

Mechanical Conventions at Atlantic City.

The annual meeting of American Railroad Association, Section 3 ,Mechanical, formerly American Railway Master Mechanics Association and Master Car Builders Association, will be held at Atlantic City, N.J., June 9 to 16, both inclusive. The reports of committees investigating locomotive matters will be received and discussed on June 9 to 11, both inclusive, and reports of committees investigating car matters will be received and discussed on June 14 to 16, both inclusive.

W. H. Winterrowd, Chief Mechanical Engineer C.P.R., Montreal, will read a paper on June 10, on snow fighting apparatus.

The general committee for the convention includes J. Coleman, Assistant to General Superintendent, Motive Power and Car Department, G.T.R., Montreal, who is Vice Chairman, and W. H. Winterrowd, Chief Mechanical Engineer, C. P.R., Montreal. Mr. Coleman, whose term of office expires June, 1920, has been re-nominated to serve until June, 1922. The election will take place on June 14.

The following officials of Canadian railways, and their subsidiaries are members of the committees named:—

I. N. Clark, Master Car Builder G.T.R., revision of passenger car rules of interchange.

J. Coleman, Assistant General Superintendent Motive Power and Car Department, G.T.R., arbitration, arrangements, car construction.

W. H. Flynn, Superintendent Motive Power Michigan Central Rd., fuel economy and smoke prevention.

A. R. Kipp, Mechanical Superintendent, Minneapolis, St. Paul & Sault Ste. Marie Ry., standards and recommended practice.

E. J. Robertson, Superintendent Car Department, Minneapolis, St. Paul & Sault Ste. Marie Ry., loading rules.

W. J. Robider, General Master Car Builder, C.P.R., car construction, repair shop layouts.

W. H. Winterrowd, Chief Mechanical Engineer, C.P.R., car wheels.

Canadian Northern Railway Indebtedness.—The Minister of Immigration stated in the House of Commons recently, in answer to a question, that the total indebtedness of the Canadian Northern Ry. as of Dec. 31, 1919, including funded debt, equipment securities, land securities, advances made by the Dominion Government, and all other liabilities outstanding, was $566,097,468.10.

Standard time on C.P.R.—The C.P.R. has not made any change in its standard of time, either on the road or in its general or subordinate offices, in connection with daylight saving. Clocks in all the company's offices and buildings remain at standard time and trains are being operated by this time.

Orders by Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed the paper have a continuous record of the Board's proceedings. No other paper has done this.

Important traffic orders made by the Board are given in full on another page of this issue.

General order 292. Apr. 22.—Approving tariffs of Canadian National Rys., C.P.R., Dominion Atlantic Ry., Esquimalt & Nanaimo Ry., G.T.R., Grand Trunk Pacific Ry., Kettle Valley Ry., Maine Central Rd., Michigan Central Rd., Napierville Jct. Ry., New York Central Rd., and Toronto, Hamilton & Buffalo Ry., increasing tolls for sleeping and parlor cars. See May issue, pg. 247.

General order 292-A. Apr. 27.—Amending general order 292, Apr. 22, re sleeping and parlor car tolls, by adding Quebec Central Ry.

General order 292B. May 5.—Amending general order 292 re standard tariff of maximum sleeping and parlor car tolls by adding "Boston & Maine Rd. C.R.C. no. S-4."

General order 292-C. May 10.—Amending general order 292, Apr. 22, re standard tariff of maximum sleeping and parlor car tolls by adding "Edmonton, Dunvegan & British Columbia Ry. C.R.C. no. S-3."

General order 292-D. May 11.—Amending general order 292, Apr. 22, re increase in standard tariff of maximum sleeping and parlor car tolls by adding "Wabash Ry. C.R.C. no. S-5."

General order 293. Apr. 26.—Ordering that all locomotives of railway companies subject to board's jurisdiction be equipped with seat for the brakeman, of a comfortable design, and where practicable equipped with back and window arm rest; to be provided by May 1, 1921. See May issue, p. 244.

General order 294. Apr. 30.—Authorizing allowances for doors for grain cars.

General order 295. May 5.—Dismissing complain of Montreal Board of Trade, Candaian Manufacturers Association, Toronto Board of Trade et al, against regulations of railway companies effective Mar. 1, ordering their agents not to accept prepayment of charges from shippers on freight from Canada to U.S. points, except on traffic on which freight classification or tariff requires prepayment.

29,551. Apr. 13.—Approving Westmount, Que., bylaw prohibiting ringing of bells and blowing of whistles on any locomotive within city limits and imposing fine therefor.

29,552. Apr. 20.—Authorizing C.P.R. to build overhead highway crossing at mile 21.3, Shawinigan Falls, Que.

29,553. Apr. 20.—Authorizing Grand Trunk Pacific Ry. to build highway crossing over its track at Cedarvale, B.C.

29,554. Apr. 19.—Authorizing G.T.R. to operate trains over siding serving Weddell & Saunders, Ashbridges Bay District, Toronto.

29,555. Apr. 19.—Authorizing Canadian National Rys. to build spur for Imperial Oil, Ltd., at Fort Frances, Ont.

29,556. Apr. 20.—Authorizing Grand Trunk Pacific Branch Lines Co. to build spur for Bituminous Collieries, Ltd., at mile 52, Alberta Coal Branch, in s.e. ¼ Sec. 19, Tp. 47, Range 19, west 5th meridian, Alta.

29,557. Apr. 20.—Approving agreement, Apr. 29, 1915, between Bell Telephone Co. and Manse Grove Telephone Association, Victoria County, Ont.

29,558. Apr. 10.—Authorizing Grand River Ry. to open for traffic, grade revision from Preston to Lot 9, Con. 2, Waterloo Tp., Ont., 2.01 miles.

29,559. Apr. 22.—Extending to June 15 time within which Humboldt rural municipality 370, Sask., may divert road and make highway crossing over Canadian National Rys. in Secs. 22 and 27, Tp. 37, Range 23, west 2nd meridian, authorized by order 29,320, Jan. 29.

29,560. Apr. 21.—Authorizing Elk Valley Lumber Co. to build railway track across the Crowsnest Southern Ry. at grade, at Fernie, B.C.

29,561. Apr. 22.—Approving location and details of building for Canadian Express Co. at G.T.R. station, Paris, Ont.

29,562. Apr. 21.—Authorizing G.T.R. to build siding and spur for Dunlop Tire & Rubber Goods Co., Toronto.

29,563. Apr. 23.—Rescinding order 29,368, Feb. 10, which required G.T.R. to maintain watchmen at crossings of Metcalfe and Caradoc Sts., Strathroy, Ont., and continuing order 10,769, June 1, 1910, in effect, but amended to provide that G.T.R. be liable to a penalty of $25 for every failure to comply with its requirements.

29,564. Apr. 24.—Authorizing Montreal & Southern Counties Ry. to file tariffs making increase of 20% in its passenger fares, tariffs to be effective within seven days from date. See also order 29,571.

29,565. Apr. 23.—Permitting railway companies to issue free transportation in certain cases. This order was given in full in May issue, pg. 247.

29,566. Apr. 21.—Authorizing C.P.R. to divert Calgary-Banff Road near Kananaskis, Alta., and carry it at grade across spur tracks in Sec. 25.

29,567. Apr. 24.—Authorizing Canadian National Rys. to rebuild bridge over Bayonne River, St. Elizabeth Parish, Joliette County, Que., mile 133.29 from Quebec.

29,568. Apr. 24.—Ordering Grand Trunk Pacific Ry. to build farm crossing for A. G. Foote, Edmonton, Alta., on n.e. ¼ Sec. 13, Tp. 53, Range 24, west 4th meridian.

29,569. Apr. 23.—Recommending to Governor in council for sanction G.T.R. bylaw forbidding any person to ride or drive any animal or vehicle over or upon roadway on Victoria Jubilee Bridge, at a greater speed than 12 miles an hour, and imposing penalty not exceeding $40 on every person who violates such bylaw.

29,570. Apr. 24.—Extending to June 30 time within which Canadian National Rys. shall install half interlocking plant at crossings of Fort William Municipal Ry. at Victoria Ave., Vickers St., and Franklin St., Fort William, Ont.

29,571. Apr. 26.—Authorizing Montreal & Southern Counties Ry. to file tariffs providing increase of 20% in passenger fares; to become effective when standard tariffs are published with notice of approval in Canada Gazette, and rescinding order 29,564, Apr. 24. See May issue, pg. 253.

29,572. Apr. 23.—Extending to June 30, time within which C.P.R. shall complete additions and alterations to station building at Kamsack, Sask.

29,573. Apr. 23.—Authorizing Assistant Chief Commissioner to approve plan showing location of C.P.R. Swift Current Northwesterly Branch (Sedgewick northerly), mile 284.80 to 334.30; also authorizing C.P.R. to build at grade across 36 highways.

29,574. Apr. 24.—Approving agreement, Mar. 31, between Bell Telephone Co. and Notre Dame de Ham Telephone Co., Wolfe County, Que.

29,575. Apr. 26.—Dismissing application of Red Deer Valley Coal Operators Association for reduction in rates on coal from mines in Alberta to eastern Saskatchewan and Manitoba points.

29,576. Apr. 26.—Authorizing Canadian National Rys. to rebuild bridge over Beaver Creek, mile 90.96 from Picton, Ont.

29,577. Apr. 26.—Authorizing C.P.R. to rebuild bridge over Brokenhead River, mile 94.1, Keewatin Subdivision, Man.

29,578. Apr. 26.—Authorizing Canadian National Rys. to rebuild bridge over Pike Creek, at Weir, Que.

29,579. Apr. 26.—Authorizing C.P.R. to rebuild superstructure by bridge over McVicar's Creek, at mile 0.41, Fort William Terminals, Ont.

29,580. Apr. 28.—Approving Montreal & Southern Counties Ry. standard tariff of maximum passenger tolls, C.R.C. 24.

29,581. Apr. 27.—Approving Supplement 2 to Express Classification for Canada 4, containing certain increased and additional ratings; supplement having originally been submitted as Supplement H to Express Classification for Canada 3. This is given in full on another page, under "Among the Express Companies."

29,582. Apr. 27.—Apportioning cost of overhead bridges or viaducts at Hastings, Pender and Keefer Sts., Vancouver, B.C., over Vancouver, Victoria & Eastern Ry.

29,583. Apr. 27.—Approving agreement Mar. 29, between Bell Telephone Co. and Pioneer Telephone Co., Oxford County, Ont.

29,584. Apr. 27.—Refusing Canadian National Rys. application for order directing N. M. Paterson & Co., Fort William, Ont., to bear all costs of installation and maintenance of crossing of King and Queen Sts., with spur on Montreal St.

29,585. Apr. 16.—Approving Supplement 13 to Canadian Freight Classification 16.

29,586. Apr. 28.—Ordering Canadian National Rys. to appoint station agent at Libau, Man., for six months, from Oct. 1.

29,587. May 4.—Approving C.P.R. local standard passenger tariff C.R.C. 189, containing tolls for special train movements in connection with special events, effective May 17.

29,588. May 3.—Ordering Canadian National Rys. to build third class station at Fork River, Man.; to be completed by Oct. 1.

29,589. May 3.—Authorizing G.T.R. to operate over bridge across Richelieu River at Beloeil, Que.

29,590. Apr. 29.—Authorizing C.P.R. to make highway crossing over its track in Sec. 30, Tp. 11, Range 26, west 4th meridian, Alta.

29,591. Apr. 30.—Approving plan of automatic electric bell to be installed by Lake Erie & Northern Ry. at crossing of Victoria St., Simcoe, Ont.

29,592. May 1.—Approving location of Canadian National Rys. Saskatoon-Calgary Branch, mile 161.28 to 181.50 and 302.57 to 322.79.

29,593. May 1.—Authorizing Canadian National to build spur for Staples Lumber Co., near Norva, Man.

29,594. Apr. 30.—Authorizing G.T.R. to rebuild bridge carrying Brock St., Whitby, Ont., over its tracks.

29,595 to 29,597. Apr. 29.—Authorizing C.P.R. to rebuild bridges 26.6 over Yale Creek, Cascade Subdivision, B.C.; 40.1 over Madawaska River, Chalk River Subdivision, Ont., and 9.3, Carleton Place Section, Ont.

29,598. May 5.—Authorizing C.P.R. to build spur for Ross-Saskatoon Lumber Co., Waldo, B.C.

29,599. May 4.—Authorizing C.P.R. to build spurs for Nicola Pine Mills Co., Merritt, B.C.

29,600. May 4.—Authorizing C.P.R. to build extension for Wood Vallance & Adams, Calgary, Alta.

29,601. May 3.—Approving route map of Quebec Central Ry. extension from Scotts to connection with Canadian National Rys. 2½ miles west of St. Isidore, Que.

29,602. May 3.—Authorizing C.P.R. to build its Rosetown Southeasterly Branch at mile 28.9, across Canadian National Rys. MacRorie Westerly Branch overhead in S.E. ¼ Sec. 16, Tp. 26, Range 16, west 3rd meridian.

29,603. May 3.—Authorizing Canadian National Rys. to cross and divert highway in the n.w. Sec. 5, Tp. 21, Range 1, Chatfield, Man.

29,604 to 29,606. Apr. 30.—Approving Bell Telephone Co. agreements, Apr. 19, with Bobcaygeon Rural Telephone Co., Victoria and Peterborough Counties; Apr. 10, with Ingleside Telephone Co., Oxford County, and Apr. 10, with Spring Creek Telephone Co., Oxford County, Ont.

29,607. May 4.—Approving revised location of C.P.R. Rosetown Southeasterly Branch, from mile 44.76 to 45.50, and mile 45.50 to 67.10; also authorizing cross ing of 18 highways.

29,608. May 6.—Ordering that, pending building of new high level bridge at Hunter St., Peterborough, Ont., C.P.R. spurs for Quaker Oats Co. at Simcoe St. be protected by watchmen.

29,609. May 6.—Authorizing Saskatchewan Government to make highway crossing at west end of C.P.R. station grounds at Elstow.

29,610. May 6.—Extending to July 31, 1921, time within which Canada National Rys. may erect gates at crossings of C.N.R. and C.P.R. at Bay Bridge Road, Belleville, Ont.

29,611. May 6.—Authorizing Grand Trunk Pacific Ry. to discontinue station agent at Reford, Sask., caretaker to be appointed to see that station is kept clean, heated and lighted.

29,612. May 6.—Authorizing G.T.R. to build spur for Crane Limited, Toronto.

29,613. May 6.—Approving location and details of G.T.R. station at Holmesville, Ont.

29,614. May 6.—Ordering Canadian National Rys. to appoint station agent at Deepdale, Man., by Sept. 1.

29,415. May 5.—Amending order 22,524, Sept. 9, 1914, re crossing of G.T.R. by Erie & Ontario Ry. in Moulton Tp., Ont.

29,416. May 5.—Amending order 22,466, Aug. 27, 1914, re Erie & Ontario Ry. grade crossing of G.T.R. in Dunville, Ont.

29,617. May 6.—Ordering Grand Trunk Pacific Ry. to build siding and warehouse facilities at Telkwa station, B.C., by June 30.

29,618. May 6.—Dismissing application of E. Guss Porter, M.P., that railway companies operating at Belleville, Ont., be required to publish rates on coal from Belleville harbor, ex vessel from Oswego, N.Y., to mid-Ontario destinations, lower than rates of special local mileage tariffs lawfully in force to same destinations.

29,619. May 10.—Approving spur for L. A. Johnson at mile 1123.15, Lot 7221, Cariboo District, B.C.

29,620. May 12.—Approving Woodstock, Thames Valley and Ingersoll Electric Ro. standard passenger tariff C.R.C. 1, effective May 24.

29,621, 29,622. May 10.—Authorizing C.P.R. to build spur for Wood, Vallance, Ltd., Regina, Sask., and extension to spur for Douglas Fuel Co., Winnipeg.

29,623. May 10.—Approving location and details of new station at Digby, N.S.

29,624, 29,625. May 6.—Approving Bell Telephone agreements, Apr. 17, with Jackson Telephone Co., Grey County, Ont., and Mar. 20, with Molesworth Independent Telephone Co., in Perth and Huron Counties, Ont.

29,626. May 11.—Relieving Canadian National Rys. from providing further protection at highway crossing at Dablon, Que.

29,627. May 11.—Dismissing complaint of H. M. Shaw, M.P., on behalf of town of Nanton, Alta., re C.P.R. train service between Calgary and Macleod, Alta.

29,628. May 11.—Authorizing Canadian Northern Ontario Ry. to open for traffic its line from mile 89.22 to 90.47, North Orillia Tp., Ont.

29,629, 29,230. May 10.—Approving Bell Telephone agreements, Apr. 26, with Central Dufferin Telephone Association, Dufferin County, Ont., and Apr. 24, with Penhurst Telephone Co., Oxford County, Ont.

29,631. May 11.—Relieving Pere Marquette Rd. from providing further protection at first public road crossing west of Blenheim station, Ont.

29,632. May 12.—Approving location and details of C.P.R. station at Cardston, Alta.

29,633. May 10.—Authorizing Canadian National Rys. to rebuild bridge over William St., Parry Sound, Ont.

29,634. May 12.—Ordering Grand Trunk Pacific Ry. to appoint station agent at Duff, Sask.

29,635. May 11.—Approving new location of tracks at G.T.R. locomotive house, London, Ont.

29,636. May 12.—Ordering Grand Trunk Pacific Ry. to appoint station agent at Kingman, Alta.

29,637. May 14.—Authorizing Toronto, Hamilton & Buffalo Ry. to build spur at mile 71.21 from Welland, Ont., for Scanlon & Moyer, Ltd.

29,638. May 12.—Authorizing C.P.R. to re[illegible] station agent at Hitchcock, Sask.

Traffic Orders by Board of Railway Commissioners.

Boston & Maine Rd. Sleeping and Parlor Car Fares.

General order 292 B. May 5.—Re application of Boston & Maine Rd. for approval of increases in its Standard Tariff of Maximum Sleeping and Parlor Car Tolls; and of general order 292, April 22, 1920, approving increased Standard Tariffs of Maximum Sleeping and Parlor Car Tolls of various railways. The applicant company's showing increases in its maximum sleeping and parlor car tolls, on the same basis as those approved under the general order 292 having been filed for the board's approval, it is ordered that general order 292, as amended by general order 292-A, April 27, 1920, be further amended by adding thereto, at the end of the order, the words, "Boston & Maine Rd., C.R.C. S-4."

G. 292C, May 10.—Further amending order G. 292 April 22, by adding, at the end thereof the words "Edmonton, Dunvegan & British Columbia Ry. C.R.C. no. S. 3."

G. 292 D, May 11.—Further amending order G. 292, April 22, by adding, at the end thereof, the words:—"Wabash Ry. C.R.C. no. S. 3."

Temporary Doors for Cars Loaded with Grain.

General order 294. April 30.—Re complaints of D. Campbell, Winnipeg; United Grain Growers, Ltd., Calgary; J. B. Stringer & Co., Chatham; and Elliott & Co., Ridgetown, against allowances provided by general order 50, Dec. 10, 1909, as amended by general order 184, Mar. 22, 1917, to shippers who are compelled to furnish temporary doors to cars loaded with grain: Upon hearing the complaints at Winnipeg, Nov. 15, 1919, and Ottawa, Dec. 18, 1919, in the presence of D. Campbell, counsel for, and representatives of the Canadian Pacific, Grand Trunk, Grand Trunk Pacific and Canadian National Railways, Michigan Central Rd., and Montreal Board of Trade, and what was alleged; and upon reading the submissions filed, and the report and recommendation of the board's Chief Traffic Officer, it is ordered as follows:

1. That general order 50, as amended by general order 184, requiring that where shippers upon all or any railways subject to the jurisdiction of the Parliament of Canada are compelled to furnish car doors to enable cars to be used for traffic, allowance therefor to such shippers be made upon the following basis:

(a) At and west of Port Arthur, lower doors, each	$1.50
lower doors, each	.75
(b) East of Port Arthur, lower doors, each	.50
upper doors, each	.50

be amended to provide that the said allowances for doors so furnished to enable cars to be used for grain, be increased as follows, viz.:

(a) At and west of Port Arthur—	
For doorways 5 ft. wide: lower doors	$2.25 each
upper doors	.75 each
For doorways 6 ft. wide: lower doors	2.60 each
upper doors	.90 each
(b) East of Port Arthur—	
For doorways 5 ft. wide: lower doors	$1.25 each
upper doors	.75 each
For doorways 6 ft wide: lower doors	1.35 each
upper doors	.90 each

Prepayment of Freight to United States Refused.

General order 295. May 5.—Re complaints of Montreal Board of Trade, Canadian Manufacturers' Association, Toronto Board of Trade et al, against regulation of railway companies, effective Mar. 1st, 1920, directing their agents not to accept prepayment of charges from shippers on freight traffic from Canada to the United States, except on traffic on which the freight classification or tariff requires prepayment. Upon hearing the complaints at Toronto, Mar. 6, and Ottawa, Mar. 16 and 17, the complainants, the Montreal Corn Exchange, certain manufacturers in the Province of Quebec, the Riordon Pulp & Paper Co., the Canadian Lumbermen's Association, the apple and potato shippers of Nova Scotia, the Border Chamber of Commerce, the Ford Motor Co., certain pulpwood industries, the J. B. Belanger Mining Co., the Canadian Carbide Co., F. E. Smith, Limited, Canadian Traffic Agency, Wm. Davies Co., Harris Abattoir Co., the Canadian Pacific, Grand Trunk, and Canadian National Railways, and the Michigan Central Railroad being represented at the hearing and upon reading the submissions filed, it is ordered that, for want of jurisdiction over the subject matter thereof, the complaints be dismissed.

Inclusion of Automobile Springs with Mixed Hardware.

April 10. In the case of J. H. Ashdown Hardware Co. vs. Canadian Freight Association, the board's Chief Traffic Officer, J. Hardwell, made the following report April 9:—Complainants desire to include automobile springs with general hardware, in mixed carloads, at the carload 5th-class rate, under the general mixing rule of the classification. The Canadian Freight Association take the ground that this is not authorized by the classification. Item 88, page 98, in the hardware trade list, includes "vehicle parts (except vehicles and vehicle bodies), as per pages 131 and 132," as changed or added to from time to time being, of course, understood. At pages 131 and 132 of the unamended classification no. 16, the list is headed simply "vehicle parts." In supplement 5, page 14, this heading was changed to read "vehicle parts: not self-propelling vehicle parts," and at pages 7 and 8 a section was added with the heading "vehicle parts: self-propelling." These changes would have limited the hardware list to "vehicle parts: other than self-propelling," had that item also been changed, but it was not changed, and the result, in my judgment, is that the hardware list literally includes all vehicle parts (except vehicles and vehicle bodies), whether qualified as self-propelling or otherwise. The board is asked to interpret the classification literally and not as to intention. In my opinion, the ruling should be in favor of the applicants.

Assistant Chief Commissioner McLean gave the following ruling April 10:—As tariffs and classifications are to be construed strictly against the railway or railways concerned, the language and not the intention of the framers or the practice of the railways being the controlling factor (Pacific Coast Biscuit Company v. S. P. & S. R. Co., et al, 20 I.C.C. 546), I am of opinion that Mr. Hardwell's report should issue as the board's judgment. The Chief Commissioner concurred.

Coal rates from Alberta to Saskatchewan and Manitoba.

29,575. April 26.—Re application of Red Deer Valley Coal Operator's Association for a reduction in existing rates on coal from mines in Alberta to destinations in Eastern Saskatchewan and in Manitoba. Upon hearing the application at Winnipeg, Mar. 3 and 4, 1919, the applicant, the Canadian National and the Canadian Pacific Railways being represented, and upon reading the submissions filed, it is ordered that the application be dismissed.

Supplement to Express Classification.

29,581. April 27.—This order is given in full under "Among the Express Companies," on another page of this issue.

Supplement 13 to Canadian Freight Classification 16.

29,585. April 16.—Re application of Canadian Freight Association, on behalf of railway companies under sec. 322 of the Railway Act, 1919, for approval of a proposed Supplement 13 to Canadian Freight Classification 16, containing certain increased, reduced, and additional ratings. Notice having been given by the railway companies in The Canada Gazette, as required by sec. 322 of the Railway Act, 1919, and to the mercantile organizations enumerated in general order 271, Sept. 10, 1919, and the proposed supplement having been reviewed at a conference of representatives of the Grand Trunk, Canadian Pacific, and Canadian National Railways, the Canadian Manufacturers' Association, and the Montreal and Toronto Boards of Trade, the Board of Railway Commissioners being also represented, held at Montreal, Feb. 19, 1920, when various objections filed with the board were considered, and the proposed changes and additions agreed to, modified, or eliminated; and upon the consideration of what has been filed, and upon the report and recommendation of the board's Chief Traffic Officer, it is ordered that the proposed supplement, as finally revised and submitted for approval by the Chairman of the Canadian Freight Association, by letter dated April 10, 1920, be approved; subject to the omission therefrom of the proposed ratings under the general heading of polishing compounds.

And it is also ordered that general order 190, May 25, 1917, be rescinded. And it is further ordered that order 11,866, Oct. 4, 1910, be amended in so far as rule 6 is concerned, by the addition of the following:—

"A box or stock car, as referred to herein, is one whose dimensions do not exceed 36½ ft. in length by 8½ ft. in width by 8 ft. in height (inside measurement), the centre side doorway of which does not exceed 6 ft. in width, by 7½ ft. in height."

C.P.R. Tariff for Special Train Movements.

29,587. May 4.—Re application of Canadian Pacific Ry., under sec. 334 of the Railway Act, 1919, for approval of its Local Standard Passenger Tariff, C.R.C. 189, containing tolls for special train movements in connection with special events, effective May 17, 1920: Upon the recommendation of the board's Chief Traffic Officer, it is ordered that the said tariff be approved; the said tariff, with reference to this order, to be published in at least two consecutive weekly issues of The Canada Gazette.

The Reid Newfoundland Co. is reported to have insured its employes under the group insurance plan. The policies cover disability or death, and remain in force during the time the holder is in the company's employ.

The Chief Railway Commissioner Speaks at London.

Hon. F. B. Carvell, Chief Railway Commissioner, who was in London, Ont., on May 3, in connection with grade separation, was a guest at a luncheon of the Canadian and Rotary Clubs. Following are extracts from his remarks, as reported in local papers:—He did not hope for much improvement in the grade separation question in the very near future, in spite of the fact that the work must be carried out and that there was no place in Canada where the condition of affairs was as bad as in London, unless it was in some of the prairie towns of the west. He pointed out that the more one examines the great transportation system of the Dominion, the more one realizes the great difficulties of ordering expensive work to be done. This is due to the great and complete economic revolution of the last five years. Prior to the war there was no difficulty in ordering the roads to make large expenditures, but this period had passed. He and the Mayor had gone carefully over the matter and there was no doubt that the work must be carried out. He watched the traffic at one of the G.T.R. crossings near the down town district and said that he wondered that people were not hit oftener than was the case. It has always been his practice to visit the scene of needed changes, and he said that there was scarcely an occasion on which he did not learn something new about the business. He thought it would be a great deal better if more public men would do likewise.

He said that the G.T.R. is passing through a period that to a great many people is little less than a tragedy, but if the company is unable to pay the interest on its bonds it has no one to blame but itself.

There are great possibilities for the system of publicly owned roads in Canada. The Canadian Northern is the best situated road in the west, with the G.T.R. the best in Ontario and Quebec. The two put together should become a splendid system. "This road will never succeed under heaven, however," he continued, "if the politicians do not keep their hands out. Unless they let D. B. Hanna alone and let him run them there will be the greatest tragedy in the history of Canada. With an admitted indebtedness of $47,000,000 it must be run on a cold business basis. I have lived along side the Intercolonial Ry., which has been a political football, and I have seen the results. If the railway is run as a railway there is no reason why the system should not be a huge success. I believe that there is a great future for railroading in Canada. The only qualification is that there must be sufficient revenue to pay the way."

Declaring that he had no special reference to the local street railway situation, as he did not know the particulars of the trouble, he said that the people must realize that they cannot get something for nothing and that it is not possible to get the kind of transportation wanted for the same prices as formerly. He pointed out that the prices of shoes and clothes and practically every necessity of life have doubled in five years, and there is not nearly as much an objection raised as when a man is asked to pay a little more for transportation.

He continued:—"If this applies to the City of London, take it. I don't know anything about the matter, but I suppose it is in connection with wages. You must face the situation and realize that you are coming to the time when you must pay a little more for transportation than in the past."

He pointed out that there had been an increase of 15% in passenger transportation and 25% in freight rates, and that during the past five years the cost of labor, which he said was about 70% of the cost of operation, had increased more than 100%.

"I don't know how they have done it. I suppose it can be attributed to the fact that Canada is prosperous and that the railways have been carrying enough more passengers and freight to make a profit. The C.P.R. has continued to pay 10%, but it is getting near the point where it must call on outside investments to continue this dividend."

Hamilton East End Incline Ry.—The question of the operation of the incline railway in the east end of Hamilton, Ont., is being negotiated between the company, of which E. Webb is President, and the city council. The railway is reported to have started operations on May 7, after a stoppage on account of wages troubles. The Hamilton City Council is taking legal advice as to whether the railway is a public utility and under the jurisdiction of the Ontario Railway and Municipal Board.

Quebec Central Railway Report.

The Quebec Central Ry., which is a C. P. R. subsidiary, had the following operating results for the calendar year 1919:—

Freight revenue		$ 953,943.66
Passenger revenue		364,846.49
Mails		14,072.24
Express, miscellaneous, etc.		41,968.49
		$1,374,830.88
Maintenance of way and structures	$	226,652.46
Maintenance of equipment		204,489.48
Traffic expenses		16,316.65
Transportation expenses		508,612.53
General expenses		48,817.88
Taxes		10,000.00
Expenses outside operations		13,409.79
Total operating expenses		1,028,298.79
Balance carried to Net Revenue Account		346,532.09
		$1,374,830.88

The officers are: Grant Hall, President, Montreal; I. G. Ogden, Vice President, Montreal, J. H. Walsh, General Manager, Sherbrooke, Que.; H. C. Oswald, Secretary, Montreal; R. D. Morrison, Asst. Sec'y, London, Eng.; Wilfrid S. Fry, Treasurer, Sherbrooke; G. D. Wadsworth, Gen. Freight and Pass. Agt., Sherbrooke; T. J. Maguire, Accountant, Sherbrooke; John T. Reid, Superintendent, Sherbrooke.

Grain in Store at Terminal Elevators, Interior Terminal Elevators and Public Elevators in the East.

Prepared by the Dominion Bureau of Statistics, Internal Trade Branch.

Week ending May 7th, 1920.	Wheat. Bush.	Oats. Bush.	Barley. Bush.	Flax. Bush.	Rye. Bush.	Totals. Bush.
Fort William						
C.P.R.	94,249	33,921	83,046	.....	27,948	239,164
Empire Elevator Co.	218,488	95,660	183,810	11,729	19,226	528,913
Consolidated Elevator Co.	279,151	73,206	135,889	40,287	12,232	540,765
Ogilvie Flour Mills Co.	684,491	130,710	67,254	.....	10,237	892,602
Western Terminal Elevator Co.	285,458	68,922	19,156	22,801	5,672	402,009
G. T. Pacific	363,106	108,092	49,626	21,814	26,864	569,502
Grain Growers' Grain Co.	699,628	229,266	49,116	.....	35,204	1,013,214
Fort William Elevator Co.	222,112	471,938	76,096	6,940	21,047	798,133
Northwestern Elevator Co.	383,675	58,716	67,460	43	69	509,963
Port Arthur—						
Port Arthur Elevator Co.	3,022,841	781,382	386,913	1,848	14,326	4,207,310
Sask. Co-op. Elevator Co.	846,819	374,273	106,032	47,734	32,969	1,407,827
Canadian Government Elevator	182,809	82,384	55,085	67,759	995	1,060,439
Thunder Bay	292,253	685,247	66,021	15,923	995	1,060,439
Davidson and Smith	118,148	61,915	17,241	.....	6,024	203,328
Eastern-Richardson	430,984	180,286	90,033	5,321	3,394	710,018
Total Public Terminal Elevators	8,124,212	3,435,918	1,452,778	242,199	235,418	13,490,525
Total Private Terminal Elevators	534,509	293,136	153,179	145	459	981,428
Saskatton Can. Gov't. Elevator	1,399,782	212,483	5,977	9,209	1,579	1,629,030
Moose Jaw Can. Gov't. Elevator	2,041,407	204,557	3,819	2,861	.....	2,252,644
Calgary Can. Gov't. Elevator	1,214,445	468,092	33,119	184	13,340	1,729,180
Vancouver, B.C.	19,989	12,883	8,569	.....	.....	41,441
*Total Interior Terminal Elevators	4,675,623	898,015	51,484	12,254	14,919	5,652,295
Midland—						
Aberdeen Elevator Co.	214,006	173,601	53,174	.....	.....	440,781
Midland Elevator Co.	127,243	18,456	56,496	.....	6,481	208,676
Tiffin, G.T.P.	351,427	.....	.....	.....	.....	351,427
Port McNicoll	741,393	37,783	.....	.....	.....	779,176
Goderich—						
Elevator and Transit Co.	399,501	249,845	.....	.....	28,576	677,922
West Can. Flour Mills Co., Ltd.	247,572	.....	.....	.....	.....	247,572
Toronto Campbell Flour Mills Co.	155,617	.....	5,547	.....	.....	161,164
Kingston—						
Commercial Elevator Co.	.....	12,655	.....	.....	.....	12,655
Montreal—						
Harbor Commissioners No. 1 and 2	304,327	628,236	195,971	7,907	3,439	1,139,970
Montreal Warehousing Co.	417,936	36,350	145,340	.....	.....	599,626
Ogilvie Flour Mills Co.	243,227	3,086	45	.....	.....	246,358
Quebec Harbor Commissioners	.....	39,719	.....	.....	.....	39,719
West St. John, N.B., C.P.R.	166,422	.....	97,355	.....	.....	263,777
St. John, N.B., Can. Nat. Rys.	151,607	.....	34,940	.....	.....	186,547
Halifax, N.S., Can. Nat. Rys.						
Baltimore, U.S.A.						
Total Public Elevators	3,520,278	1,199,821	588,868	7,907	38,496	5,355,370
Total Country Elevators	8,890,062	5,519,627	1,272,750	261,535	.....	15,943,974
U.S. Atlantic Seaboard ports—						
Portland, Me.	84,736	76,745	19,788	.....	3,251	184,520
Baltimore, Md.	.....	.....	.....	.....	19,742	19,742
Total U.S. Atlantic Seaboard Ports	84,736	76,745	19,788	.....	22,993	204,262
Total Quantity in Store	25,829,420	11,423,262	3,538,847	524,040	312,285	41,627,854

*Quantity for each individual interior terminal elevator not received.

Track Section Prize Competition on Canadian Pacific Railway, Eastern Lines.

For the past seven years an annual track section prize competition has been carried out on the C.P.R. Eastern Lines, which has aroused a healthy spirit of rivalry and keen competition among the section forces of the different divisions and districts. Sixty-three prizes are awarded in the competition, as follows:—A General Manager's prize to the foreman having done the best season's work on Eastern Lines. Four general superintendent's prizes, to the foreman on each district who has done the best season's work, exclusive of the winner of the General Manager's prize. Fourteen division superintendent's prizes, to the foreman on each division who has done the best season's work, exclusive of winners of higher prizes. Forty-four roadmaster's prizes, to the foreman on each roadmaster's territory who has done the best season's work, exclusive of winners of higher prizes.

Under this system no man can win more than one prize, and all foremen have an equal chance, as the quality of the work done throughout the season is the deciding factor, and not the actual physical condition of the section at the end of the season. The basis on which the sections are judged is entirely efficiency, and careful consideration is given throughout the season to the condition of, and work done on, ditches, gauge, spiking, line, surface, bolts, rail wear, so far as it can be controlled by the section forces, switches, sidings, right of way and station grounds, track signs, cattle guards and fences. The amount of work done and the hours of labor put in, both by regular force and extra gang, are also carefully considered, and the foreman accomplishing the best work with the least amount of labor—the physical condition of the section, as to grade, alignment, drainage, and character of roadbed being taken into consideration—wins the first prize.

The number of hours of regular labor and the number of hours of extra labor on the section are figured against the number of ties renewed, tie plates installed or changed, rails changed over on curves and ditching done, etc. The amount of track handled, right of way, spikes and bolts is fairly uniform on all sections, so that the condition with respect to these items at the end of the season is usually a criterion of the amount and quality of the work done thereon throughout the season. Where special conditions affect such work they are taken into consideration. Some idea of the care exercised in judging a foreman's work can be formed by following the work in connection with the selection of a prize section. Towards the end of the season, on each of the 44 roadmasters' territories, a section is picked out as the most deserving in point of work done during the season with the material and labor available. These are carefully inspected by the superintendent and resident engineer, who select the best one on each district for inspection by the general superintendent and division engineer. All divisions of a district are covered by these two officers, and the section selected which they consider eligible for the General Manager's prize. The judging for the General Manager's prize is done personally by the General Manager, the Engineer of Maintenance of Way, the Assistant Engineer of Maintenance of Way, and district officials.

Following is a list of the successful section foremen for 1919:—General Manager's prize, $100—Albert Elliot, Cavan, Sec. 7, Peterborough Subdivision, Trenton Division, Ontario District.
boro Subdivision, Ontario District.

New Brunswick District, General Superintendent's prize, $50—A. Badeau, Sec. 6, Moosehead S'd.

Brownville Division, Superintendent's prize, $25—J. Conley, Sec. 8, Moosehead S'd. Roadmasters' prizes, $10—O. Maillette, Sec. 2, Mooshead S'd.; R. A. Finlay, Sec. 3, St. John S'd.; A. Grant, Sec. 1, Shore Line S'd.

Woodstock Division, Superintendent's prize, $25—A. E. Lewin, Sec. 6, St. Stephen S'd. Roadmasters' prizes, $10—R. Allen, Sec. 2, Shogomoc S'd.; M. B. Clarke, Sec. 5, Gibson S'd.; A. Peluso, Sec. 4, Aroostook S'd.

Quebec District, General Superintendent's prize, $50—Sec. Foreman J. Daoust, Sec. 3, Waltham S'd.

Farnham Division, Superintendent's prize, $25—J. Gandreau, Sec. 3, Newport S'd. Roadmasters' prizes, $10—A. Laurendeau, Sec. 16, Sherbrooke S'd.; J. Clouatre, Sec. 12, Adirondack S'd.; J. McManus, Sec. 4, Drummondville S'd.; J. Partridge, Sec. 7, Newport S'd.

Montreal Terminals Division, Superintendent's prize, $25—A. Belec, Montreal West. Roadmaster's prize, $10—P. Lavoie, Mile End.

Laurentian Division, Superintendent's prize, $25—A. Fisette, Sec. 3, Three Rivers W. S'd. Roadmasters' prizes, $10—M. Langlois, Sec. 21, Three Rivers E. S'd.; P. Lafontaine, Sec. 11, Three Rivers W. S'd.; D. Robertson, Sec. 18, Lachute, S'd.; A. Morin, Sec. 6, Ste. Agathe S'd.

Ottawa Division, Superintendent's prize, $25—J. McGregor, Sec. 7, Maniwaki S'd. Roadmasters' prizes, $10—M. Tanguay, Sec. 12, M. & O. S'd.; A. Martineau, Sec. 3, Maniwaki S'd.; R. Whalen, Sec. 10, Waltham S'd.

Smiths Falls Division, Superintendent's prize, $25—P. Lapier, Sec. 11, Winchester S'd. Roadmasters' prizes, $10—T. Giles, Sec. 7, Brockville S'd.; C. Montroy, Sec. 18, Winchester S'd.; A. Austin, Sec. 18, Chalk River S'd.

Ontario District, General Superintendent's prize, $50—C. Stewart, Sec. 12, H. & G. S'd.

Trenton Division, Superintendent's prize, $25—C. Dowdall, Sec. 14, Havelock S'd. Roadmasters' prizes, $10—B. Locking, Sec. 13, Port McNicoll S'd.; J. Leggett, Sec. 13, Peterboro S'd.; M. Long, Sec. 12, Belleville S'd.; G. Fagg, Sec. 3, Oshawa S'd.; W. Davis, Sec. 8, Havelock S'd.; H. Roberts, Sec. 5, Bobcaygeon S'd.; G. Sproule, Sec. 4, Kingston S'd.

London Division, Superintendent's prize, $25—A. Fairbanks, Sec. 4, Windsor S'd. Roadmasters' prizes, $10—A. Hawkins, Sec. 4, Galt S'd.; R. Babcock, Sec. 11, Windsor S'd.; H. Doll, Sec. 8, H. & G. S'd.; J. Cox, Sec. 15, St. Marys, St. Thomas & P. B. S'd.

Bruce Division, Superintendent's prize, $25—T. J. Smith, Sec. 9, MacTier S'd. Roadmasters' prizes, $10—H. Hawke, Sec. 15, MacTier S'd.; J. Hiscox, Sec. 2, Orangeville, Elora, Teeswater & Wing S'd.; W. Carr, Sec. 3, Owen Sound & Walkerton S'd.

Toronto Terminals Division, Superintendent's prize, $25—L. Francis, Sec. 1, Don. Roadmaster's prize, $10—F. Tuckley, Sec. 8, Islington.

Algoma District, General Superintendent's prize, $50—C. Smith, Sec. 1, Parry Sound S'd.

Sudbury Division, Superintendent's prize, $25—E. Morin, Sec. 12, North Bay S'd. Roadmasters' prizes, $10—S. McCarthy, Sec. 2, North Bay S'd.; W. Evans, Sec. 6, Cartier S'd.; J. Penfold, Sec. 6, Parry Sound S'd.; D. Vitone, Sec. 9, Thessallon S'd.

Chapleau Division, Superintendent's prize, $25—E. Nelson, Sec. 23, White River S'd. Roadmasters' prizes, $10—M. Hakkinnon, Sec. 24, Nemegos S'd.; M. Stasco, Sec. 7, White River S'd.

Schreiber Division, Superintendent's prize, $25—H. Patritti, Sec. 15, Nipigon S'd. Roadmasters' prizes, $10—L. Zanni, Sec. 15, Heron Bay S'd.; B. Michaud, Sec. 19, Nipigon S'd.

The Board of Railway Commissioners' report for the year ended Mar. 31, 1918, was distributed from Ottawa in April. We are advised that the report for the year ended Mar. 31, 1919, is being printed, but will not be ready for distribution for some little time.

Additional Hand on Watches. — Grand Trunk Ry. employes have been notified that the addition to their watches of another hand, to indicate standard and daylight saving time, will not be allowed by the company, in the interests of safety first.

Among the Express Companies.

The Canadian National Ex. Co. has opened an office at MacDairmid, Ont.

The Canadian National Ex. Co. has opened an office at Ragged Rapids, Ont., and has closed its temporary office at Kylemore, Sask.

The Board of Railway Commissioners has approved the location and details of the express building for the Canadian Ex. Co. at the G.T.R. station at Paris, Ont.

The Board of Railway Commissioners passed general order 296 May 15, granting the Express Traffic Association of Canada's application for approval of regulations for transportation by express of acids, inflammables, oxidising substances, etc., after making certain alterations therein.

Under the Corporation's Tax Act 1920, passed by the New Brunswick Legislature recently, it is provided that every express company doing any express business within the province shall pay $100 for each city in which it transacts business, $50 for each town, whether incorporated or not, having a population of 3,000 or more people in which it transacts business, $25 for each town or village with a population of at least 2,000 in which it transacts business and $10 for each office with an agent in any other place having a population of more than 200 people.

The American Railway Express Co. will from July 1 keep a duplicate copy of every receipt it issues when receiving business from shippers. The duplicates will be retained by the company for record and reference, and will be held at the shipping office. Shippers who have been accustomed to prepare their own receipts, or who have their own forms, have been requested to make provision for supplying duplicates to the express driver or receiving clerk who signs them. As a matter of convenience to shippers,

the company's regular receipt forms will be revised to permit their use in duplicate form. In cases where prepaid receipts are now being issued in duplicate, the extra copy being used as a record of charges paid, a third copy will be required under the new system, and in such instances prepaid receipts will be issued in triplicate. One of the objects of the new system is to bring about better protection for and methods of recording the movement of express packages in transit.

The Board of Railway Commissioners passed order 29,581, April 27, as follows:—Re application of Express Traffic Association of Canada, on behalf of express companies under sec. 360 of the Railway Act, 1919, for approval of a proposed Supplement 2 to Express Classification for Canada 4, containing certain increased, reduced, and additional ratings; the Supplement having been submitted originally for approval as Supplement H to Express Classification for Canada 3: Notice of submission for the board's approval having been given by the express companies in The Canada Gazette, as required by sec. 321 and 348 of the Railway Act, 1907, and to the mercantile organizations enumerated in general order 153, Nov. 4, 1915; and upon the consideration of objections filed with the board to certain proposed increased ratings and charges; and upon the report and recommendation of the board's Chief Traffic Officer, it is ordered that the proposed Supplement 2 be approved, with the following exceptions, viz.:

(1) Conditions of Carriage 3 to be struck out, having since been included in Express Classification for Canada 4, approved by order 28,627, Aug. 11, 1919.

(2) The items referring to liquids and to Scale K to be struck out, having been withdrawn by the companies for further consideration.

(3) Gas mantles, incandescent, 1½ 1st class, instead of twice 1st class, as proposed.

(4) Hand pumps: 1st class when boxed or crated; 1½ 1st class if packed otherwise, instead of twice 1st class as proposed.

(5) Organs: minimum charge to be the same as proposed and hereby approved for automatic piano player attachments.

Telegraph, Telephone and Cable Matters.

The British Columbia Telephone Co. is reported to have ordered an additional submarine cable to connect Vancouver Island with the mainland, thus duplicating its present service.

The Great North Western Telegraph Co. has opened offices at Shippegan, N. B., Barraute, Landrienne, McCarthy, Que., Cardinal Canal, Ont., Bethany, Man., Ashmont, Burbank, Leslieville, Saunders, Smoky Lake, Alta., and has closed its offices at Callander, Grafton, Kabina and Norwood, Ont.

The Commercial Cable Co. is reported to have decided to add another cable ship to its service, for operation out of Halifax, N.S. It is stated that Capt. F. H. Landner is in Great Britain superintending the construction of this ship, which will be larger than the existing cable ship Mackay-Bennet. The company has completed new sheds at Upper Water St., Halifax, at a cost of over $100,000.

The New Brunswick Legislature has passed a Corporation Tax Act which provides, among other things, for a tax upon every telegraph or other company working a telegraph line for the use of the public within the province, a tax of 1% upon the entire gross receipts within the province, arising from business transactions within the province. A tax of 1% of the gross earnings within the province is provided for telephone companies with an additional amount of 25c. on each telephone under rental.

The Board of Railway Commissioners delivered judgment May 21 on the application of telegraph companies for permission to increase tolls. The completed judgment has not been received at the time of going to press, but it is stated that the companies will be authorized to subdivide the existing rate zones east of Sudbury, Ont., and extend them to Quebec province. Flat rates for the zones will be increased from 25c. to 30c. a message, and additional words will be 2c. instead of 1c. a word. Scaled increases from 10c. to 25c. a word will be allowed on the $1 transcontinental rate, with a special provision to allow the Grand Trunk Pacific Telegraph Co. to charge $1.55 to Prince Rupert, B.C. The increased rates do not apply to press dispatches or messages for the West Indies. The average increase in rates is 32% east of Fort William, Ont., and 20% west of Fort William.

Proposed Wireless Telegraph System for the British Empire.

The Marconi Wireless Telegraph Co. has submitted a proposal to the British Government for the establishment of a series of wireless telegraph stations throughout the empire. The congestion at present prevailing on the submarine cables emphasizes the necessity for additional lines of communication. The knowledge gained, and the great strides made in wireless telegraphy during the war, render it quite possible to design a wireless system which it is claimed may be guaranteed to give a service, between any two places, equal to that given by the submarine cable.

The principles governing in any such scheme as is proposed, are broadly, as follows: That such trunk routes and branch routes be provided as will enable Great Britain to communicate with any part of the empire; that any part of the empire be capable of communicating with any ships equipped with modern wireless receivers in any sea between lat. 60N and 50S; that no submarine cable be relied on to form part of this proposed network of wireless communications; that the use of land telegraph lines be avoided as far as possible, and these lines restricted to the passage of messages between the public and the nearest wireless station; that where alternative routes are available, such as between England and South Africa, via the east coast or the west coast, both routes be provided; that on the trunk routes, automatic transmission and reception at a speed of not less than 100 words a minute be provided, and that separate transmitting and receiving stations be erected, in order that the service may be duplexed; that as much foreign traffic as possible be attracted to the network, in order that the system may at least be self supporting as a commercial enterprise, preferential treatment being accorded to British traffic.

The routes proposed are as follows:—England to India and thence to Singapore, Australia and New Zealand, with a branch from Singapore to Hong Kong; England to Egypt and thence to East Africa and South Africa; England to Egypt and thence to India, Singapore, etc.; England to West Africa, with a branch from West Africa to South America; England to West Indies; England to Montreal and thence to Vancouver; Australia to Vancouver (only night service to begin with). This system would necessitate the erection of 5 main trunk stations in England, 3 in Egypt, 3 in India, 2 in East Africa, 2 in Montreal, 2 in Vancouver, 2 in South Africa, 1 in West Indies, 2, with 1 auxiliary, in West Africa, 2, and 1 auxiliary, in Singapore, and 2 with connection to New Zealand by main feeder station, in Australia.

The company has offered to build, maintain and operate such a chain of stations at its own cost, and to pay to the Government in each of the territories where one or more stations is erected, 25% of the net profits earned by such stations. On the expiration of 30 years from the inauguration of the service, it will become the property of the government concerned, if so desired, without any payment. Thetrunk stations to be completed within three years from the date on which permission to begin work is given. The governments concerned will have the right to take over any of the stations at any time, by paying for them the value at which they stand in the company's books, plus any sum which may have been expended on the creation of the services, and by paying to the company 10% of the gross receipts for the balance of the 30 year period. The government will also have the right to take over and control the stations in the case of war or of national emergency.

Old Time Telegraphers' and Historical Association.—The annual meeting of this association will be held at Toronto, Aug. 31, Sept. 1 and 2, G. D. Perry, General Manager, Great North Western Telegraph Co., Toronto, being President. A committee meeting was held at Toronto recently, to make the preliminary arrangements for the reunion. The association has only met once before in Canada, since its organization in 1880, that being at Montreal in 1901. In the endeavor to make the forthcoming meeting a record one, the committee purposes enlisting the co-operation of all telegraphers and ex telegraphers in Canada, eligible for membership, and elaborate arrangements are being made for the entertainment of the visitors. Committees have been formed to take charge of the various sections under the names of membership, finance, entertainment, publicity, hotel, badge and supply, and ladies.

Government Telegraph Operators.—The Minister of Railways stated in the House of Commons recently, in answer to questions:—Government telegraph operators have not received the bonus granted to other civil servants, and it is not the government's intention to grant them the bonus in future. Standard rates of pay, corresponding to those of the commercial telegraph companies, are paid government telegraph employes, and being in receipt of prevailing wages they are not entitled, under the regulations, to receive any bonus.

Telegraph and Telephone Line Estimates.—The further supplementary estimates for the year ended Mar. 31, 1920, submitted to the House of Commons recently contain the following items for telegraph and telephone lines:—British Columbia: Mainland, further amount required, $14,000. Alberta: Further amount required, $8,500.

Electric Railway Department

The Engineering Features of Tramway Operation.

By D. E. Blair, B.Sc., A.M.E.I.C., Superintendent of Rolling Stock, Montreal Tramways Co.

The author has had many doubts as to the best direction in which a discussion on tramway matters should be guided, in order that the results of his labor should be of general interest as well as be of some value in a constructive sense. A decision was made that it would be appropriate to apply our efforts to a discussion of matters that have a direct bearing on further improvement of car service rather than to offer a critical or descriptive treatise on existing conditions. The object of the paper will, therefore, be to point out some things that may be done to effect a more complete solution of the transportation problems that face us today. Further progress must be guided by an appreciation of sound engineering principles, unfettered by consideration of established custom, expediency, ward poltics, and selfish wire pulling. The highest ideals attainable should be kept in plain sight. It will then be in order to stick as closely as possible to standards of maximum efficiency, and to depart therefrom only because of sound practical reasons. The subject can thus be approached with an open mind and we can realize more quickly, and with less effort, that certain existing conditions have no sound reason for existence except that they have been established by custom. These conditions must be improved if we are to enjoy a higher standard of service for a minimum of cost.

The matter of urban transportation has always been a vital factor in the life of city dwellers, but in a passive sense. The public at large are now active partners in the operation, as well as the users or patrons, of the street car services of many cities, and we should now realize that the street car service in any large community serves a greater number of people, and is of greater importance, than any other form of traffic, and should therefore be given prior rights, within reason, over all other vehicular traffic. Since the rate of fare and the quality of service rendered depend entirely on the overall efficiency of operation, it seems to be an opportune time to direct attention to the great importance of educating street car users to a fuller understanding of the fundamental factors that make for efficient and satisfactory transportation. It is of great importance that they should know, and fully appreciate how, and to what extent, the hearty co-operation and good will of the public, and of the municipal authorities, is necessary to the consummation of the carefully worked out plans of the management of public utility organizations toward further improvements.

The present equipment available, and in general use, has reached a very high standard. No consideration of cost or lack of engineering skill stands in the way of further progress, and the art has reached a stage where little remains to be done, that is within the control of railway managers, to improve the standards of modern car service. Under existing conditions we have reached a point very near to maximum theoretical efficiency, and this question presents itself: Can existing conditions be modified, without injury to other interests, so as to result in improvements that are worth while?

The development of street transportation has not been confined to any particular locality on this continent, but is the composite result of painstaking effort distributed from coast to coast. Methods and practices have always been wide open for comparative study, and full advantage has been taken of this fact. Many recognized opportunities for improvement still remain undeveloped, owing largely to a strange unreasoning attitude of the public against any reforms that are suggested by the capitalistic monsters who thrive in idleness upon the fabulous wealth wrung from the hands of those who toil. This is the mental fog that must be dispelled by education, before much further progress can be made. The financial operations of many of the larger transportation ventures of this country are now laid bare to public scrutiny. Public commissions now supervise every transaction, and have more than a theoretical control of actual operation. It is interesting to note that the rapidly increasing rates of fare are coincident with the increasing effectiveness of public supervision.

Canadian Electric Railway Association.

Honorary President, Lieut.-Col. J. E. Hutcheson, General Manager, Montreal Tramways Co.

Honorary Vice President, Acton Burrows, Proprietor and Editor, Canadian Railway and Marine World.

President, A. Gaboury, Superintendent, Montreal Tramways Co.

Vice President, G. Gordon Gale, Vice President and General Manager, Hull Electric Co.

Honorary Secretary-Treasurer, pro tem, A. Eastman, Vice President and General Manager, Windsor, Essex & Lake Shore Rapid Railway Co.

Executive Committee, The President, Vice President, and F. D. Burpee, Superintendent, Ottawa Electric Railway Co.; C. C. Curtis, Manager, Cape Breton Electric Co.; A. Eastman, Vice President and General Manager, Windsor, Essex & Lake Shore Rapid Railway Co.; Geo. Kidd, General Manager, British Columbia Electric Railway Co.; M. W. Kirkwood, General Manager, Grand River Railway Co. and Lake Erie & Northern Railway Co.; A. W. McLimont, Vice President and General Manager, Winnipeg Electric Railway Co.; R. M. Reade, Superintendent, Quebec Railway Light & Power Co.; Lt.-Col. G. C. Royce, General Manager, Toronto Suburban Railway Co.; C. L. Wilson, Assistant Manager, Toronto & York Radial Railway Co.

Official Organ—Canadian Railway and Marine World, Toronto.

General Argument.—The primary requisites of a satisfactory system of transportation may be stated as follows: 1, Speed. 2, Safety. 3, Comfort. 4, Continuity of service. 5, Frequency of service. 6, Convenience of service. In addition to, and closely associated with each of these, is the question of economy, but it is not the writer's intention to preach economy where depreciation of any of these factors is the result.

Any increase in the standards of the last five items is likely to add to the cost, but it is well that we should realize that increase of speed, within the practical limitations of street traffic, will tend toward greater economy, without necessarily affecting the question of safety, and higher speed will add very materially to the efficiency of the service. Speed of transportation may in fact be considered as the fundamental requirement of a satisfactory service, and it should, therefore, be the outstanding objective of all effort toward improvement. By speed or schedule speed is meant the average or effective speed with which a car covers distance, and this should not be confused with velocity at any given moment or with maximum speed attained between stops. In order to intelligently analyze the question of schedule speed it is necessary to introduce a very convenient figure which allows us to dissect and study the fundamentals of all traffic movement, viz.: the speed time curve.

Speed Time Curve.—The movement of a street car from one end of a line to the other is made up of a series of hops, or cycles, from station to station, or from stop to stop, and it will be one of the chief purposes of this paper to show to what extent the public would benefit by a radical increase of the distance between stops. If they would once realize this fact, they would insist upon an immediate change. These cycles vary in length, and the time necessary to operate over each one is subject to conditions of grade, density of traffic, etc., but a study of a single average cycle will bring out all the characteristics of a series of such cycles which constitute any run. What happens in such a cycle can be represented very accurately by a diagram constructed of four distinct elements, representing each of the four factors of which any typical run or cycle is constituted. The variation in speed of any moving object may be represented graphically by a series of points, the height of these points above a base line being in proportion to the speed, and the distance from a vertical line of reference being a measure of the time, after the beginning of the cycle, at which each speed is observed. Thus a constant speed would be represented by a horizontal line joining the observed degrees of speed or velocity. Thus also a line slanting up ward represents the movement of an object whose speed is increasing, and a line sloping downward indicated a decreasing rate of motion.

The four component elements of our curve are as follows: 1, Period of accelleration from rest to maximum speed, under the action of propelling forces. 2, Period of coasting, without applied power, and without restriction of motion other than from friction. 3, Period of decelleration or slowing down, under the retarding action of brakes and friction. 4, Period of rest at stopping points. Each of these periods is subject to certain practical limitations, but each one is also affected by variable elements, some wholly within the control of the operating crew, some depending entirely upon the passengers, and others subject to motor capacity, interference of independent traffic, physical conditions, etc. The ef-

ficiency of the whole is dependent upon the co-operation of the general public, for whose benefit the cars are operated, but who are prone to magnify the value of petty advantages to the individual at the expense of the general welfare. Control of traffic by the municipal authorities also has a serious bearing on the matter. Because of the practical limitations controlling each factor and because the question of economy is also of interest, further explanations are advisable.

Accelleration Period.—The rate of increase of speed is in proportion to the resultant of all the forces acting on the car. The forces applied to produce motion are rarely limited by the capacity of the motors, but should be controlled within a reasonable degree of comfort to the passengers. The rate is absolutely limited by the amount of tractive effort that may be developed between wheel and rail, before wheel slipping occurs.

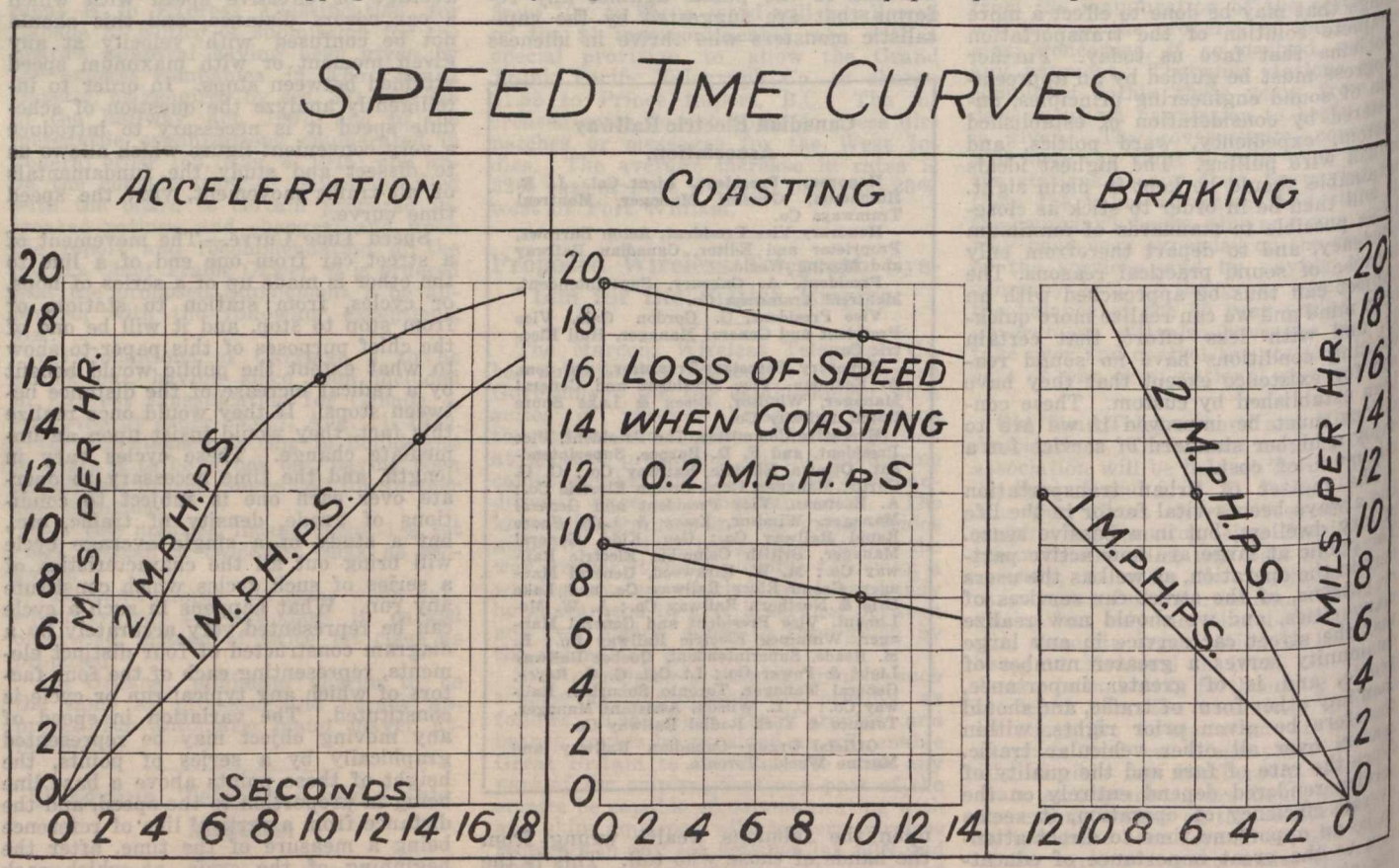


Chart One

As to comfort, the sensations due to change of speed are not so much due to a high rate of accelleration as to sudden changes in the rate of accelleration. A constant rate of 5 F.P.S., P.S. has no disagreeable effects, but a sudden change from a rate of 2 F.P.S. to 3 F.P.S., P.S. is quite noticeable and annoying. For this reason, the high rates attained with the help of automatic methods of control in use on the New York subways, or on the 2-car trains in Montreal are not noticed as much as the jerky motion resulting from control changes under the hand and judgment of the motorman of an ordinary car.

The rate of accelleration under either method of control is under the control of motorman and is, of course, subject to rail conditions. It is of considerable importance as effecting schedule speed, maximum speed, safety, and economy. A certain definite amount of energy must be applied to a body of known weight, in order to impart a given speed to that body. In the case of a car in city service the energy absorbed in overcoming friction is quite small. A very large proportion of the applied energy is utilized to overcome the inertia of the car. The power necessary to propel a 25-ton car, at a constant speed of 8 m.p.h. is only 10.7 h.p. To accelerate this same car at a reasonable rate of 2 m.p.h. per second required 230 h.p.

Attention may be called to the wide difference between the controlling factors of steam railway trunk line practice and that of street railways. Freight movement, especially, is controlled by the relation of weight on engine drivers to total tonnage hauled. Rate of accelleration is not of primary importance, provided a locomotive may start a standing train, and negotiate ruling grades. Steaming capacity is then provided to maintain a reasonable speed over relatively long distances. Street car equipment, on the other hand, is designed primarily to produce quick accelleration. Motor capacity is then ample for the operation of grades up to nearly 15%.

All of the energy applied to overcome inertia, and therefore impart speed at the beginning of a cycle, remains stored up in the car, by virtue of its motion, in the form of kinetic energy, and is available to perform useful work in overcoming frictional and other resistances throughout the rest of the cycle of motion. It is a fact, not generally recognized, that, within the limits of wheel slippage, the faster the rate of accelleration of a street car, the less power is consumed to produce a given speed. This is partly due to the inherent characteristics of the series wound motors universally applied to this kind of work. These characteristics are such that a series motor is capable of producing maximum torque, at maximum efficiency, at the low speeds at which a large part of the total work within a cycle is performed. A high value of motor efficiency is maintained at the higher speeds as well. A further outstanding advantage is that it will automatically adjust its speed, in keeping with the nature of the work it has to perform, thus tending to keep down the current drawn from line within the limits of its capacity.

The speed of the motor under a given load is definitely fixed by the voltage applied to its terminals. The line voltage being constant, and the maximum current allowable during accelleration being limited, it is necessary to absorb the excess voltage during that period by switching inert resistance into the main motor circuit. For this reason about one half of the energy drawn from line during the time of controlled accelleration is absolutely wasted in the rheostats. It is, therefore, desirable to shorten this period and to impart as much of the final speed as possible after all wasteful resistance has been eliminated and the motors are working at a high overall efficiency. The importance of fast accelleration goes far beyond the question of energy wasted in rheostats. High speed is essential if we wish to overcome space in minimum time. It is obvious that the more quickly the maximum speed of a given run is reached, the shorter the time that will be necessary to cover the distance between stops, or, to state this in another way, the higher the average speed throughout the run the lower will be the maximum speed necessary to traverse a given distance in a given time. The element of danger in the operation of vehicles of any kind is qualified by maximum speed attained, rather than by the more reasonable average speed. It was previously mentioned that average or schedule speeds can be increased without increasing the hazard. Here is the explanation and this will be referred to again.

Coasting Period.—It was previously stated that a large part of the total energy required to operate a street car is utilized to overcome inertia and impart speed. The kinetic energy stored up in the car at a given speed during each cycle is equal to one half its weight, multiplied by the square of its velocity in feet per second. If the operating conditions are such that the brakes must be applied as soon as the power is turned off, practically all of this energy is absolutely wasted in the form of heat developed at the brake shoes. This is undesirable. If, however, the run characteristics are such that after a certain maximum speed has been promptly reached, power can be shut off and the car allowed to roll, or coast, for a greater or less distance, before the application of brakes, then a certain proportion of this stored energy is utilized to good advantage, in overcoming the frictional resistances during the remainder of the run. During this period the car will slow down gradually, losing about one mile per hour of speed in every five seconds. The brakes are applied at a lower speed than in the previous case, and, besides the saving of power, there is a distinct saving in wear of brake shoes and wheels. The length of this coasting period in the analysis of any run gives a very definite indication of the efficiency of the motorman. This desirable period can be lengthened by cutting down the other three, viz.: accellerating, braking and rest periods.

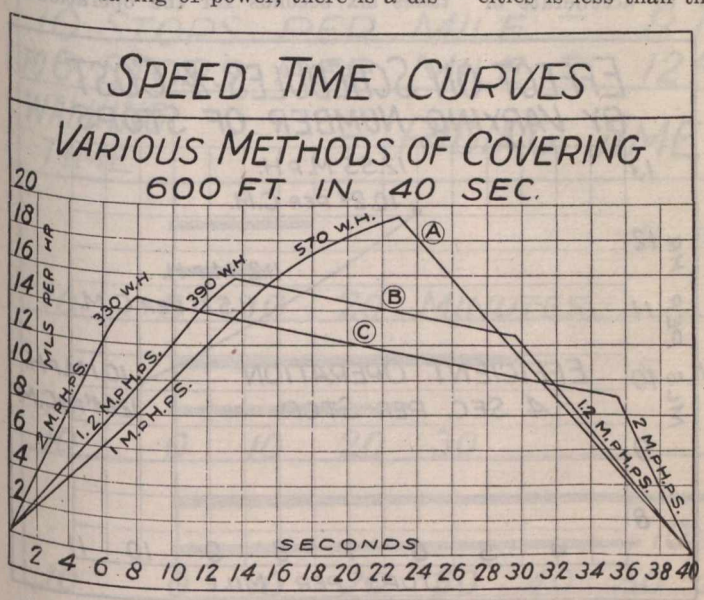


Chart Two

Braking Period.—The rate of acceleration or braking, is under the control of the motorman, and subject to conditions of rail friction and comfort of passengers. A maximum rate of 3½ miles an hour per second is possible, but seldom reached on open streets. A high practical standard is about 2 miles an hour per second. The only point of special interest here is that, for the same reasons as given under the heading of acceleration, a maximum rate of braking should be developed at the beginning of the period when the speed is greatest. It is evident that as much distance as possible should be covered while the car is running free at a high speed, and that the brakes should be applied for as short a time as possible. The average speed during the application of brakes is only half of the initial speed at which brakes were applied and it is evidently desirable to shorten the time during which this reduced speed is effective to overcome distance.

Period of Rest.—Since movement is the primary object of transportation, it is evidently desirable that the stops should be as short as possible, and here is where the co-operation of the passengers is of greatest importance. In order that this fact may be impressed upon the mind while further discussion proceeds, it may be stated that since the rates of accelleration and braking can be fixed at a practical maximum, every second wasted while a car it as rest is equivalent to a loss of distance equal to one second's travel at maximum speed, say 20 miles an hour, viz.: about 30 ft. per second. Experience and careful recording of actual conditions has shown that good traffic control, prompt movement of passengers, alert action by the conductor and immediate response of motorman to his signals will result in practical loading and unloading delays as low as one second per passenger in fairly large batches and three seconds per passenger when only one or two passengrs are handled.

The average length of stop in some cities is less than three seconds. Actual conditions existing in Montreal do not compare favorably. The reasons are perhaps not so much due to lack of energy, or to inherent slowness of movement of the local population, but rather to the fact that the public has not been educated to a realization of the great advantages to themselves that would result from a snappier movement when in the vicinity of the steps of a standing street car. It must be remembered that each car on a busy line is just one of many links in a moving chain, and any delay suffered by one car is reflected back to every other car in the line, so that the speed of the whole is limited to the speed of the slowest car.

Other means of eliminating these wasted moments, which, when all added up, result in considerable loss of time and speed, are as follows:—1. Passengers having change or tickets ready, and in hand for deposit, when boarding car. Fumbling in pockets and handbags, on crowded platforms, and tender of bills when purchasing tickets, are very efficient methods of annihilating speed. 2. Clearing of entries and exits, thus assisting free movement. 3. Movement of descending passengers toward doorways, in advance of actual stoppage of car. 4. Provision by the municipal authorities of safety zones at congested points, where intending passengers may form in queues at the exact location where the car step will be stopped. 5. Better control of promiscuous traffic, at certain crowded intersections at busy hours. At certain points the public should demand that all but street car traffic be prohibited at rush hours. At other points, left hand turns of vehicles should be prohibited, and automobiles and other vehicles should not be allowed to park at the curb, within a block on the near side of intersections. This allows moving vehicles to remain on the roadway rather than encroach on the car tracks. 6. Prevention of overcrowding of cars. Delays from this cause are very serious, and reforms in this direction will require the serious and well organized co-operation of the police with the more thoughtful element of the public.

It will perhaps be some time before the public will realize that a company is losing money when cars are crowded to the point where length of stops are appreciably increased, and further to appreciate the fact that if crowding were not permitted, anyone could afford to let half a dozen cars go by, and still get home sooner than they do when overcrowding exists. The cause of congestion at certain downtown loading points is that during certain periods the number of people requiring transportation is larger than can be handled by the number of cars that can be operated past these points on limited track facilities. A sufficient number of cars is usually available. These form a long procession, ready to perform useful work, but are forced to crawl along at snail's pace, owing to the excessive time lost in loading by each unit at the head of the procession. There are times when, because of the danger attendant upon starting cars while a crowd is surging around the steps, more than a minute elapses between the dispatch of successive cars. Each of these may carry 125 passengers. Three times as many cars could be sent away, loaded with 80 to 100 passengers each, if crowding were eliminated, and the company, as well as the public, would profit by the change. Elementary arithmetic will show that six equally spaced cars, running around a loop at 12 m.p.h., will transport as many passengers as 12 cars running in the same loop at half speed, or 6 m.p.h. Why then should the public

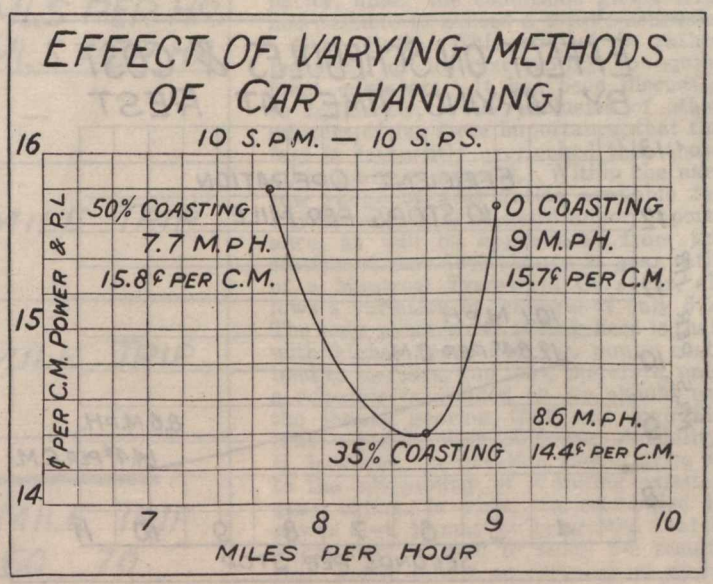


Chart Three

not co-operate with a company to run all the 12 cars at 12 miles an hour with half the number of passengers in each car?

Under present conditions, operating companies are providing far more cars than are necessary to perform the relatively poor service rendered, but it is physically impossible to bring these cars into efficient and expeditious service, on account of slow dispatching of car units past congested areas. If we always keep in mind the idea that every car on every city line can be considered as a link in an endless chain belt, it will be easy to realize the advantages that would accrue to both the public and a company, if the speed of the whole chain can be increased. The strap hanger may quite properly be said to pay the dividends, but the rear platform acrobat is a general nuisance, and should be treated as such.

The general features of the several elements of the speed time curve having been discussed at some length, we may now proceed to a study of the curve as a whole. Before doing so, it is necessary to call attention to what is perhaps the most important factor bearing on the question of faster schedule speeds, viz.: the number of stops per mile or the spacing of stops. We must know the number as well as the duration of the stops before we can form any idea of the time necessary for a car to travel over a given route.

It will be shown that after the highest possible speeds have been reached, as a result of close co-operation between the operating company and the public, it is yet easily possible to make remarkable improvements in schedule speeds, simply by reducing the number of stops. Under prevailing conditions, in Montreal and elsewhere, it is not found practicable to make better speed than 8 miles an hour, when a car has to make 10 stops a mile. About 9 miles an hour is the maximum possible speed that can be made within the limits of acceleration, braking, and time of loading previously mentioned, when making 10 stops a mile. It will be seen, however, that by the simple expedient of increasing the distance between stops, from 528 ft. to 880 ft., it is easily possible to maintain a practicable schedule speed, under exactly the same operating conditions, of 12 m.p.h. In other words, by adding 352 ft. or 66% to the distance between stops, a trifling matter when studied intelligently, we can add 50% to the effective speed of every car on the system. The element of safety is not affected, and the higher speed means that every passenger will get to his destination in one third less time. One hour is cut down to 40 minutes, three quarters of an hour to 30 minutes.

Why has this practice not been adopted? Simply because the voice of the individual who runs a banana-stand at a street corner where a stop has been eliminated, is louder than the demand of the public for a constructive plan of improvement in their car service. Incidentally it will be shown that the possibilities of increasing prevailing schedule speeds in this direction is not striking, until the average distance between located stops is greater than 528 ft. or 10 stops a mile. As spacing is increased beyond this limit, the advantages are very interesting and the opinion may be expressed that there is no good excuse for placing stopping points less than 800 ft. apart.

Analysis of Speed Time Curves. — It has been stated that the accelleration and braking rates have definite limits. It is not practicable to accellerate or brake faster than 2 miles an hour per second. Up to this limit, however, the motorman has complete control and can vary the rates at will. These periods then being of less direct interest to the public, it will be necessary here to merely indicate in which direction the motorman's efforts should be turned in order to produce the high average speeds which this paper advocates.

Accelleration, chart 1.—Considering acceleration first, take two examples of one and two miles an hour per second respectively. The straight line part represents the speed of the car, as the power is gradually turned on by the motorman. When power is full on, the inherent characteristics of the motors determine how the speed will continue to increase. After 10 seconds of operation, with an initial accelleration of 2 m.p.h. p.s. a distance of 140 ft. has been covered. It will be found that it requires 14 seconds operating the other way to cover the same distance. Obviously slow accelleration does not make for high schedule speeds, and therefore fast accelleration, up to the limit imposed by comfort of passengers, should be encouraged. Power is being consumed during the whole accelleration period, and it will be shown that not only does fast accelleration make faster schedules possible, but that in a given schedule, fast accelleration allows the cycle to be performed at a smaller power cost.

Coasting.—The action of the car while coasting is entirely out of the hands of the crew, and on level track the car retards at the rate of two miles an hour in 10 seconds, no matter what speed the car had when coasting commenced. Obviously a car retarding from 20 to 18 m.p.h. in 10 seconds will cover more distance than a car retarding from 10 to 8 m.p.h. in 10 seconds. It is absolutely essential that in practice a certain amount of coasting be allowed in the average cycle; otherwise when delays occur the car cannot regain time. Here then is a further argument for fast accelleration. Since high initial coasting speed is desirable, and the total time in motion is limited, the only way to obtain that speed is to accellerate quickly to it.

Braking.—The same reasoning applies to the reverse operation of braking. Consider two cases where cars are braked from 12 miles an hour at rates of 2 and 1 m.p.h. p.s. respectively. In one case it takes six seconds for the operation of bringing the car to rest, and in the other case 12 seconds. If we are trying to save time, the first is evidently the proper method. Incidentally, brake shoe wear is much less at the higher rate of accelleration and braking, because of lower maximum speeds and greater degree of coasting.

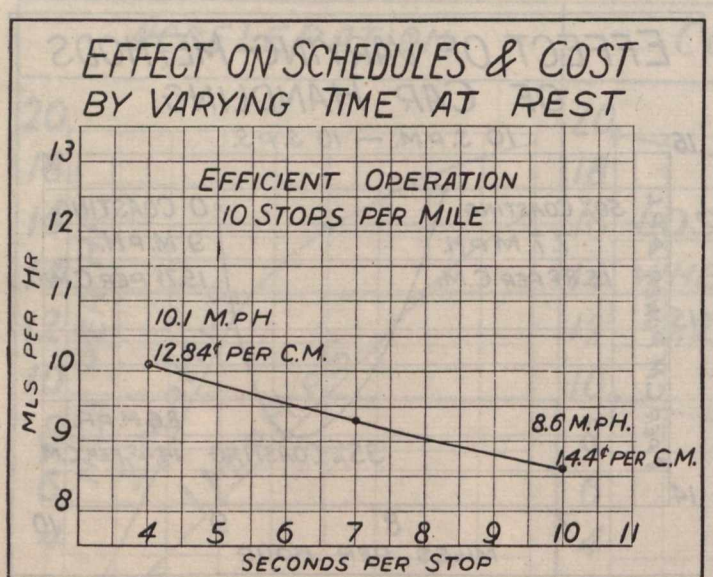


Chart Four

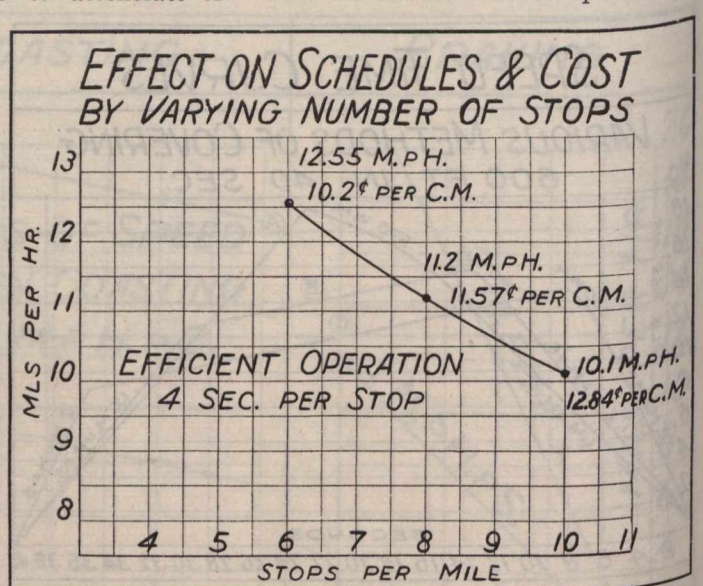


Chart Five

Completion of Speed Time Curves.—Combining the three elements just considered, we obtain diagrams as shown on Chart 2. Since the area of this diagram is the product of time and speed, it is a measure of the distance travelled. This illustrates three methods of traveling 600 ft. in 40 seconds. The first method is to accellerate slowly to a certain speed, and brake slowly to the stopping point (Curve A). The second, to accellerate somewhat faster, coast a certain distance, and brake somewhat faster (Curve B). The third, to accellerate as fast as is practicable, coast as far as possible, and brake as quickly as comfort will permit (Curve C). The motorman has these three choices or some modification of each. So far as the passengers are concerned, they all accomplish the same end, viz.: going 600 ft. in 40 seconds. But there are two very im-

portant points to consider here: safety and cost.

The factor of safety of car operation may be described as the ability of the car to stop quickly in emergency. If we consider that the possible stopping distance is proportional to the square of the speed at which the car was travelling when the brakes were first applied, it will be apparent that the safest way of operating is that in which the car has the lowest maximum speed. A calculation of power consumption reveals the fact that method A required 570 watt hours for the trip; method B, 390 watt hours, and method C 330 watt hours. So from the point of view of economy also, once the distance and time are fixed, the practice should be to accellerate and brake fast, and coast as far as possible. This completes the part of car operation directly in the hands of the motormen. The crew do not fix schedules, and they can only partially assist in speeding up the remaining element of the cycle, viz.: the time at rest.

Before passing on, however, attention should be drawn particularly to the fact that in this matter of car operation, safety and economy are coincident. Since there are such wide variations in possible power consumption for a given run, it is quite plain that for economy's sake the companies will do all in their power to encourage motormen to operate efficiently. Many companies have made marked improvements in this direction by educational campaigns supplemented by instruments which record each car's performance, and have incidentally lowered the maximum speeds thought to be necessary for satisfactory operation. The subsequent argument for higher schedule speeds bears this in mind, and nowhere in this paper is a schedule speed mentioned that if efficiently operated will necessitate a higher maximum speed than is frequently observed with inefficient operation at 8 miles an hour.

Schedule Speeds.—Passing now from individual car runs to the larger question of operation in general, we will connect the argument with the two large factors in which the public and the operating companies are directly and jointly interested, viz.: schedule speeds and operating costs. Certain portions of the costs are fixed, others are functions of the schedule speed. We will confine ourselves to the latter, and see in what manner increased schedule speeds affect public convenience, and also operating costs, which of course in turn reflect to some extent on the rates of fare. It is necessary to show the relative effect of varying the principal factors that bear on the subject of schedules. These are:—Motorman's performance or efficiency of car handling; gear ratio; time of stop; distance between stops. Motorman's performance, though very important in some respects, has relatively very little to do with schedule speed. As we have seen, it is to everybody's interest to accellerate and brake as quickly as possible, and a certain amount of coasting is absolutely necessary, for the sake of flexibility as well as efficiency.

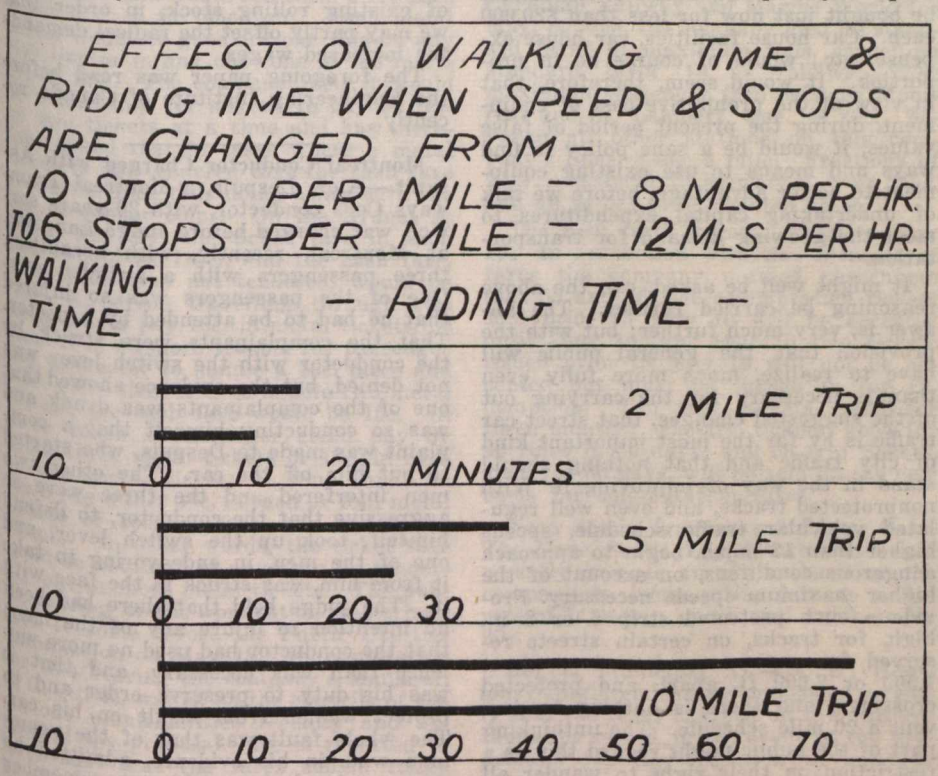


Chart Six

Chart 3 shows to what extent, with a given equipment, schedule speeds may be varied, by allowing different coasting periods, accellerating and braking rates remaining fixed at the practicable maximum of two m.p.h. p.s. The highest schedule speed is of course obtained when no coasting is allowed, i.e., power is left on till the moment brakes are applied. Thus for any condition of stop, and time of stop, there is a definite maximum possible schedule speed. This is fundamental, and shows up the fact that no marked improvement in present schedules can be obtained by any manipulation of the car itself. For instance, at 10 stops a mile, 10 seconds a stop, the highest schedule speed possible is 9 miles an hour. There is no way of increasing this, by any changes of car equipment, within the practicable limits imposed by accelleration and braking rates. However, in order to have reasonable flexibility, i.e., to allow lost time to be made up, we cannot insist on maximum possible schedules. Furthermore, by increasing the coasting period up to a certain point, the decrease in power consumption more than offsets the increase in platform labor cost.

A still further increase in coasting reduces the schedule speed to a point where further saving of power is more than offset by increased platform labor, so that for any given distance between stops and time of stop, there is a schedule having minimum cost. This condition obtains when coasting is from 30 to 40% of total time. Note that costs as well as speed are almost entirely dependent upon the question of stops. At 10 stops a mile and 10 seconds a stop the following examples are noted:—

With 0 coasting 9 m.p.h. as maximum possible schedule, costing 15.7c a car mile for power and platform labor.

With 35% coasting, 8.6 m.p.h., which is the highest practicable speed with all motormen highly efficient; costing 14.4c a car mile.

With 50% coasting 7.7 m.p.h., costing 15.8c a car mile.

It is generally conceded that at 10 stops a mile the best that can be expected from average motormen is 8 miles an hour. The important point to keep in mind, however, is that no matter how we force a car, with unlimited motor capacity, under the conditions given, it is not possible to exceed a 9 mile schedule.

Gear Ratio.—This subject is rather technical, of interest mainly to equipment engineers. It has been discussed so frequently, to the exclusion of other matters of far more importance, that the fact is frequently overlooked that those other matters do exist. Within the narrow range of gear ratios available for city service, it is of quite minor importance, as will be appreciated from the statement that 30% change in gear ratio of a Montreal Tramways Co.'s car, allows a variation in schedule of only 6%. The only point worth noting here is that, with higher speed gearing, power costs tend to increase, and that, therefore, once a schedule is decided on we should use the lowest gearing that will maintain that schedule with sufficient flexibility. If, however, the question should arise as to the advisability of changing existing gear ratios, in order to economize in power cost, it may be suggested that it might first be well to study the results that would follow an increase of speed without change of gears. It may be found that the service will be vastly improved, and equal or greater economies effected at the same time, if the efficiency of operation is improved by increasing the speed, rather than by lowering the gear ratio to suit prevailing speeds. These are too low to meet modern requirements of transportation. There is little to be hoped for by altering equipment, and whatever results can be brought about by efficient car handling should certainly be taken advantage of by the operating companies, since it makes for economy at the same time. The only remaining factors of importance as affecting schedules are the time of stop and the distance between stops, and it will be seen that these have far more effect than any of the factors that are directly under the control of the operating company.

Time of Stop.—When the car is at rest, it is benefitting neither the passengers nor the company, for time standing still is absolutely lost, and it should be evident that the sooner the car gets started again, the better for all concerned. But here is a point in which all street car passengers are vitally concerned, for without their co-operation practically nothing can be accomplished.

Chart 4 has been prepared from a

series of speed time curves such as are shown on chart 2, showing the effect on possible schedules of varying only the length of time at rest. The schedules shown are what can be obtained by operating at high efficiency, but leaving some flexibility. Average distance between stops has been taken at 528 ft., or 10 a mile. When the car is at rest 10 seconds each stop, a schedule of 8.6 m.p.h. can be maintained. With seven second stops, a speed of 9.3, and with four second stops, 10.1.

Here are evidently some possibilities, but the question of cost must not be lost sight of. If increased schedules entail increased costs, we will have to find a compromise which while benefitting the public in the way of better service, will not be a burden in the way of higher fares. The two large items of cost, directly affected by car operation, are power and platform labor. Power can be calculated, once the run characteristics are fixed, and platform labor is inversely proportional to schedule speed. Combining the two then, will give a very close index of the trend of running costs. We found that by decreasing the time of stop from 10 seconds to 4 seconds, the schedule could be increased from 8.6 to 10.1 m.p.h. Since no change in the motorman's performance is necessitated by the change in the time at rest, power per car mile will be the same in both cases. Under the conditions stated, power will cost 3.93c a car mile at 1c a k.w. hour. Platform labor at 45c an hour will cost at 8.6 m.p.h., 10.47c a car mile, and at 10.1 m.p.h. 8.91c, so the combined costs are 14.4c and 12.84c respectively. Coincident, therefore, with the marked increase in possible schedule speed that can be brought about by the assistance of the public, is an equally marked reduction in operating costs.

Number of Stops.—Building on this promising result, let us see what the remaining factor, viz.: number of stops, will do. Chart 4 was calculated for 528 ft. stops. Using the four second stop which we saw was of advantage to both public and company, chart 5 gives the results of lengthening out these stopping points, within practical limits.

Calculating from similar speed time curves, it is found that at 8 stops a mile, instead of 10, under equally efficient car handling, a speed of 11.2 m.p.h. can be reached, and at 6 stops a mile, 12.55. Figuring power and platform labor as before we see them to be:—at 10.1 m.p.h., 12.84c; at 11.2 m.p.h. 11.57c; and at 12.55 m.p.h. 10.2c. Charts 4 and 5 are drawn to the same scale, to show that reducing the number of stops is of far greater influence on possible schedules than even the time of stop, and we saw that time of stop had more influence than car equipment and handling.

Let us see if the increased distance between stops imposes any serious inconvenience. Ten stops a mile means 528 ft. between stops, or 176 ft. average walking distance, aside from cross street travel. At three miles an hour, this requires 30 seconds to walk. Six stops a mile means 880 ft. between stops, or 220 ft. average walking distance, requiring 50 seconds. Now by having our stops 880 ft. apart and obtaining co-operation for quick movement at stops, we saw that a schedule of 12.55 m.p.h. is possible, or let us say 12 m.p.h. Please remember that this is the only way by which a 12 mile service can be made.

Chart 6 gives some idea of what the difference between 8 mile service and 12 mile service means to the average street car riders. It is suggested that the average passenger walk 20 seconds farther. If he is going 2 miles, he can save five minutes or 300 seconds. If he is going 5 miles he can save 12 minutes; if 10 miles, 25 minutes. This for an extra walk of 20 seconds. The public in a city like Montreal take some 210,000,000 car rides a year. Assume the average ride at 2 miles. The annual saving of time to the public by 12 mile service, as against one of eight m.p.h. is 17,500,000 hours, or 2,000 years.

It is worth remembering that this saving to the public in general would be accompanied by a substantial reduction in operating costs, and also a marked saving in capital investment, since the same service can be maintained with 800 cars at 12 m.p.h. as with 1,200 cars at 8 m.p.h. Cars of a type suitable for heavy traffic in Canadian cities cannot be bought just now for less than $20,000 each. Car house facilities, car house expense, etc., would of course be in proportion. It would seem, therefore, that in view of the prohibitive cost of equipment, during the present period of false values, it would be a sane policy to find ways and means to use existing equipment to better advantage, before we talk of undertaking capital expenditures to meet the growing demand for transportation.

It might well be asked, can the above reasoning be carried further. The answer is, very much further; but with the provision that the general public will have to realize, much more fully even than is necessary for the carrying out of the suggested changes, that street car traffic is by far the most important kind of city traffic and that nothing should stand in the way of improving it. With nonprotected tracks, and even well regulated vehicular traffic schedule, speeds higher than 12 m.p.h. begin to approach dangerous conditions, on account of the higher maximum speeds necessary. Provide a curb protected strip 6 or 8 in. high, for tracks, on certain streets reserved for express service, stops about 1,500 or 2,000 ft. apart, and protected crossings, and there is nothing to prevent a 20 mile schedule. The unthinking part of the public might regard this as a restriction on their right to wander all over the highway, but, in actual time, the gain would much more than offset any imagined inconvenience. However, let us get the 12 mile service first.

The outstanding features to be remembered are:—

1. That higher schedule speeds are desirable from every point of view. They can be obtained without extra cost and without affecting safety of operation.
2. That higher speeds will result in an improved degree of comfort and frequency of service, because of less overcrowding and shorter headway between cars.
3. That speeds higher than those now prevailing depend almost entirely on reducing the number and time of stops, and that a decrease in the number of stops is of more importance than a decrease in the time of stops.
4. That convenience is only a relative factor. An extra walking distance of a few feet is of no real moment when compared with the outstanding advantage of quick transportation. One cannot have private taxi cab service at tramway fares, but there is no reason why the speed of taxi cab service cannot be approached.
5. That appreciably higher speeds cannot be obtained by any possible means within the control of operating companies. Improved service rests in the hands of the users of street cars. Questions of car design, motor equipment, routing of cars, etc., are all of some importance, but their effect on the quality of service is negligible, when compared with the possibilities of improvement along the lines suggested.
6. That the bogie of high cost cannot be used as an argument against faster service, because higher speeds in city transportation tend toward lower operating costs.
7. Higher speeds will result in a more efficient use of existing equipment, with the result of curtailing the demand for the non-essential production of rolling stock, in favor of the real necessity for greater production of essentials.
8. It may be stated that it is absolutely essential to investigate every possible means of increasing the efficiency of existing rolling stock, in order that we may partly offset the radical demands for increased wages.

The foregoing paper was read before the Engineering Institute of Canada recently.

Montreal Conductor Charged with Assault.—Alex. Despuis, a Montreal Tramways Co.'s conductor, with 20 years service, was charged before Judge Lancetot, at Montreal, recently, with assaulting three passengers with a switch lever. One of the passengers was so injured that he had to be attended by a doctor. That the complainants were struck by the conductor with the switch lever was not denied, but the evidence showed that one of the complainants was drunk and was so conducting himself that a complaint was made to Despuis, who started to put him off the car. The other two men interfered and the three were so aggressive that the conductor, to defend himself, took up the switch lever, and one of the men, in endeavoring to take it from him, was struck in the face with it. The judge held that there had been no intention to injure any of the men; that the conductor had used no more violence than was necessary, and that it was his duty to preserve order and to protect women from insult on his car. The whole fault was that of the young man who, in his evidence, admitted he was so drunk he could not remember what happened. The case was dismissed.

Speed Limit in Montreal.—Police Constable M. Herscovitch brought an action in the Quebec Superior Court, May 10, against the Montreal Tramways Co. to recover $15,000 for injuries to a minor son who was knocked down by an electric car on St. Lawrence Boulevard about five years ago. The evidence showed that the average speed of the car was 8.60 miles an hour including stops, which was in contravention of the Quebec Railways Act, which prohibited tramway companies incorporated within the province running cars in excess of 6 miles an hour unless the lines were properly fenced in, or unless the charter expressly provided that this speed limit might be exceeded. The Montreal Tramways Co.'s new charter authorizes it to run its cars at 10 miles an hour, subject to the Quebec Public Service Commission's approval. Advantage was not taken of this provision, counsel for the plaintiff stating that the sanction for the higher speed limit did not take effect until May 1, 1920. The action was settled, judgment being given fo rplaintiff for $2,000, thus obviating a legal decision on the point of law raised, viz., whether the company was limited until May 1, 1920, to a speed of 6 miles an hour by the Quebec Railway Act.

Increases in Electric Railway Passenger Rates.

Cape Breton Electric Ry.—We are officially advised that in May, 1918, the company made an application to the Nova Scotia Public Utilities Commission for authority to charge a 6c. fare on all city lines, and a 6c. fare in each zone of the Sydney & Glace Bay Ry., the fares prevailing at that time being 5c. Public hearings were held in Sydney in July and Aug., 1918, and in Nov., 1919, and a decision was given by the Commission authorizing the company to put the 6c. fare into effect. This was done as of Mar. 15, 1919. In April, 1920, the company applied to the commission for authority to charge a 7½c. fare. If this increased fare is granted the company proposes to use metal tickets, similar to the ones now being used and would sell them 2 for 15c., 4 for 30c., 6 for 45c., etc. Each metal ticket would be good for one ride on any city line or in any one zone of the interurban line. The company feels it would be a hardship for anyone to buy so few as two tickets at a time and has therefore asked that in cases where a metal ticket is not tendered that the cash fare should be 10c., thus doing away with the use of copper coins. On the Sydney & Glace Bay Ry. the ticket fare in each zone would be 7½c., and the cash fare, if a ticket was not tendered, would be 10c. A person travelling through two zones would pay 15c. in metal tickets, or since it is no more trouble for passenger and conductor to handle a 10c. piece and a 5c. piece than it is to handle two metal tickets, the cash fare would be 15c. In three zones a passenger could pay by using three metal tickets or 15c. in cash or one metal ticket; in four zones he could pay either 30c. in cash or four metal tickets or 15c. in cash and two metal tickets. In other words, the ticket rate could be obtained at any time by tendering one or more metal tickets. The public hearing of the application was scheduled to come before the Public Utilities Commission on May 18. In preparation for this hearing the company's Manager, C. C. Curtis, waited on the councils of the various municipalities recently and explained the proposal. He is reported to have said that the fares should really be increased to 10c., instead of the 7½c. asked for. The company's pay roll for 1919 was 115% greater than for 1915, and 130% greater than for 1913, and certain repairs which cost $220 a few years ago had cost this year $590.

Levis County Ry.—The question of a proposed increase of fares necessary to meet the company's employes' demands for higher wages, came before the Quebec Public Service Commission May 11. Representatives of Levis and Bieuville municipalities stated that they would accept the Commissioners' arbitration of the matter, but it was stated that Lauzon and St. Romuald municipalities would stand by the terms of their contracts with the company. Counsel for the employes stated that the company had expressed its willingness to do something for them, but that its present resources did not permit it to do so; therefore they asked the Commission to take up the question of increasing fares. The commission decided to take up the matter and fixed May 19 as the date when the assent or refusal to accept the commission's arbitration be filed by all parties concerned, and fixed May 25 or 26 as the date for hearing the case.

A press report of May 20 states that in consequence of St. Rowuald and Lauzon municipalities having intimated to the Quebec Public Service Commission that they would not agree to a proposal to increase fares, the Levis County Ry. ceased to operate its cars in those municipalities on the night of May 19, the employes having refused to operate the cars in the municipalities on account of the refusal to allow higher fares, which would result in higher wages. The cars were reported to be running only to the Levis boundary on May 20. Lauzon municipal council has instructed its solicitor to take action to compel the company to operate its cars in the municipality.

Montreal & Southern Counties Ry.—Under the Board of Railway Commissioners' order 29,571, April 26, published in Canadian Railway and Marine World for May, pg. 253, the company filed its standard tariff of maximum tolls, cancelling standard tariff 10, as follows:—"The maximum passenger fare between Montreal and St. Lambert, Que., is 20c. Between all other stations on this company's lines, 3.45c. a mile. Fractions of 2½c. and under to be waived, over 2½c. and up to 5c., to be counted as 5c."

The new tariff became effective May 10. In connection with this increase of fares the company notified passengers that 55 and 46 ride commutation tickets sold prior to May 10 will be accepted until June 10; and that 10 trip tickets issued prior to May 10 will not be accepted but must be turned in for redemption. Ten trip tickets, good for three months; scholars' tickets, good for 40 rides in 30 days; and 55 trip tickets, good for 30 days, will be sold on the new basis for commutation fares.

Nova Scotia Tramways & Power Co.—The Nova Scotia Legislature was asked recently to pass an act authorizing the company to increase its fare to a flat rate of 7c. a trip, and to sell 4 tickets for 25c.

Regina Municipal Ry.—D. W. Houston, Superintendent, recommended recently that the fares charged on this railway should be raised, in the event of the proposition for the operation of one-man cars not going through. A bylaw to provide for the operation of such cars is to be submitted to the ratepayers at an early date; consequently the city commissioners have not taken any action on the suggestion to increase fares. The present fare schedule and that proposed is as follows:—

	Present.	Proposed.
Cash . .	5c.	6c.
Unlimited tickets	5 for 25c.	9 for 50c.
Book tickets .	21 for $1	None
Labor (6 to 8 a.m.)	8 for 25c.	None
Children . .	10 for 25c.	8 for 25c.

With the present travel the suggested new fares would give an increased revenue of $1,000 a week.

Sarnia St. Ry.—A press report states that the Sarnia St. Ry. Co. has announced that it will make an early application to the Sarnia, Ont., City Council for authority to increase fares 6c. to 7c.

Woodstock, Thames Valley & Ingersoll Electric Ry.—The Board of Railway Commissioners passed order 29,620, May 12, approving this company's standard passenger tariff C.R.C. 1, effective May 24. The fare from Woodstock to Vareys, 3.05 miles, is 7c., and from Woodstock to Ingersoll, 10.20 miles, 25c. From Ingersoll to the park, 4.55 miles, the return fare is 20c.

London Street Railway Fares and Wages.

The questions of an increased fare on the London, Ont., St. Ry., and of an increase of wages for the employes are bound up together, and have been under discussion from various points of view for months. Early in 1919 the city council passed a bylaw authorizing the company to collect an increased fare. Action to quash the bylaw was taken and in Oct., 1919, Chief Justice Falconbridge declared it invalid, holding that the city had no power to pass such a bylaw. The company appealed against this decision to the Court of Appeal, which gave judgment April 9, four of the five judges deciding in favor of reversing the decision quashing the bylaw. The bylaw authorized the company to sell 6 unlimited or 8 limited tickets for 25c. instead of 7 or 9 as formerly.

The city in an omnibus bill introduced in the Ontario Legislature at its present session, asked for authority to grant an increase of fares, but this is reported to have been dropped when the bill was before a committee. Be that as it may, the company's employes pressed their demands for increased wages, and the company expressed its willingness to meet this demand if it could increase its fares permanently. The men demanded an increase of wages from the present rate, ranging from 39c. to 44c. an hour to from 60c. to 65c. an hour, according to length of service, together with certain working conditions. These terms not being agreed to, the men went out on strike on April 30. On May 3, efforts having failed to bring the company and its employes together, the city council authorized the Mayor to appeal to the Ontario Railway and Municipal Board to operate the line. Members of the board arrived in London May 4 and decided to operate the line, the service being resumed May 6. The men returned to work at the old rates, but were promised that from any balance remaining after meeting operating costs and bond interest were met, an increase of wages would be granted. One of the features of the operation of the line by the board is that cars are being operated on Sundays, notwithstanding the fact that the city bylaw granting such permission has expired. The board had an audit made of the company's books so as to prepare a report on the situation for presentation to the city council, and on May 19 a press report states that the board has advised the council that additional revenue was necessary if the line was to continue in operation.

A press report of May 24 stated that the employes had agreed to accept an increase of 8c. an hour, based on the condition that the city allow the company to charge a cash fare of 5c. and sell 6 limited tickets for 25c.

Port Arthur Civic Ry.'s Future. — A press report states that Hydro Electric Power Commission of Ontario engineers were expected in Port Arthur, Ont., May 18 to value the Port Arthur Civic Ry. with a view to its being taken over and operated by the Commission.

Moncton Tramways, Electricity & Gas Co.—The New Brunswick Legislature has passed an act authorizing the City of Moncton to buy the electric lighting plant, and electric tramways in the city from the Moncton Tramways, Electricity & Gas Co.

Electric Railway Projects, Construction, Betterments, Etc.

Calgary Municipal Ry.—The Calgary, Alta., city commissioners, a press report of May 7 states, decided not to endorse the proposal to extend the Burns Ave. car line further in East Calgary, on the ground that all available funds were exhausted, and that it would necessitate the passing of a bylaw. The estimated cost of the extension is $18,000. (April, pg. 202.)

The Cape Breton Electric Co., we are officially advised, expects to rebuild the power station at Dominion No. 4 so that it will serve as a car house for Glace Bay cars, or to build a new car house. This work is necessitated by the fire which destroyed the company's car house Mar. 6. (May, pg. 257.)

Fort William Electric Ry.—We are officially advised that half interlocking plants are being installed at the crossings of the Canadian National Rys. at Victoria Ave. and Franklin St., Fort William, Ont. The car barns destroyed by fire recently are being rebuilt, the contract having been let to Hancock & Co. We are also advised that the erection of a 45 x 18 ft. addition to the car barns, to be used as a storehouse, is contemplated. (April, pg. 202.)

London & Port Stanley Ry.—The London Railway Commission is reported to have authorized the purchase of a gravil pit property, estimated to provide 40,000 cubic yards of ballasting material.

A press report of May 12 stated that the building of a second track through St. Thomas, Ont., was expected to be completed early in June. This will give about four miles of what will be practically a double track line, not continuous, but including sidings at certain points and passing tracks along the line. It is also reported that it is proposed to consider the building of six miles of second track between Whites and Yarmouth in the near future. (May, pg. 257.)

Montreal & Eastern Counties Ry.—The Dominion Parliament has extended for five years the time within which the company may build lines from the northern limit of Chambly County to Sherbrooke, Que., and lines in the counties of Beauharnois, Chateauguay, Huntingdon and Napier. The company is a G.T.R. subsidiary, and with the other G.T.R. lines will pass under Dominion Government ownership. (Feb., pg. 81.)

New Brunswick Power Co.—A press report states that as soon as the company's electric railway can be extended from Fairville to Manchester, N.B., a through service will be operated from King St., St. John, to Manchester Corner, on the Manawagonish Road. An agreement between the company and the municipality is under consideration. (Mar., pg. 145.)

Quebec, Ry., Light & Power Co.—The extension of the Beauport line from the Canadian National Rys. tracks to the terminal just beyond Beauport Asylum, Quebec, is reported to have been opened for traffic. The Beauport line was completed as far as the C.N.R. tracks and put in operation Nov. 17, 1919, and construction of the extension opened recently was put in hand immediately thereafter. (May, pg. 257.)

We are officially advised that the company will start building half a mile of new track over the Laviguer bridge on the Dorchester line extension in June, and expects to finish it in August.

We were officially advised May 10 that negotiations were still pending in connection with the projected extension to Lorretteville.

Regina Municipal Ry.—A delegation representing the North Annex and Highland Park Ratepayers' Association is reported to have asked the Regina, Sask., City Council to extend the electric railway on Broad St., northerly for four blocks. The estimated cost is $5,500 or $6,500, according to the weight of rails used, and property owners are said to be ready to pay interest on the cost of construction and operation loss which might accrue. The matter was referred to the city commissioners for consideration. (Jan., pg. 34.)

Sandwich, Windsor & Amherstburg Ry. We are officially advised that nothing is being done by the Hydro Electric Power Commission of Ontario with regard to an extension of the railway in land from the Detroit River, as reported in the daily press.

Toronto Civic Ry.—The Ontario Legislature's private bills committee on Nov. 7 defeated the section of the City of Toronto's bill to give the city authority to issue debentures for $943,000 for the construction of the Mount Pleasant car line.

The city council had before it on May 10 a recommendation from the board of control to ask the ratepayers to vote on a bylaw to issue these debentures, at the municipal elections on Jan. 1, 1921. The council passed a resolution providing that as soon as the bill before the legislature is passed the proposed transportation commission shall be appointed, and that it be requested to proceed with the construction of the Mount Pleasant line with all possible despatch. April, pg. 203.)

Waterloo-Wellington Ry.—The Ontario Legislature's railway committee refused to pass the company's bill to enable it to extend its line from Bridgeport to Guelph, on the ground that it would interfere with the Hydro Electric Power Commission of Ontario's plans. (April, pg. 203.)

Winnipeg Electric Ry.—We are officially advised that it is proposed to remove half a mile of single track on Marion St., St. Boniface, extending from Rue de Meurons to the C.P.R., and in lieu of this to operate a bus line on Marion St. from the corner of Rue de Meurons to the stock yards, a distance of one mile. This service is being undertaken in lieu of electric car service on account of the company not being able to cross the railway tracks on Marion St. with a car line. The company has ordered 1½ ton chassis for the busses, which are being built in Winnipeg. They will each accommodate 20 passengers seated and 15 standing. (May, pg. 257.)

Postmens' Transportation in Toronto. The further supplementary estimates for the year ended Mar. 31, 1920, submitted to the House of Commons recently, contained the following item:—Arrears due Toronto Ry., for conveyance of letter carriers, during fiscal years 1917-1918, and 1918-1919, $27,187.

The Calgary, Alta., City Commissioners on May 10 recommended the purchase of $1,146 worth of machinery for the car barns, and three 200 k.w. transformers. (April, pg. 202.)

British Columbia Electric Railway Restored to Provincial Jurisdiction.

The Railway Act 1919, as passed by the Dominion Parliament, contained the following section:—

"6. The provisions of this act shall, with out limiting the effect of the last preceding section, extend and apply to,—

"(a) every railway company incorporated elsewhere than in Canada and owning, controlling, operating or running trains or rolling stock upon or over any line or lines of railway in Canada either owned, controlled, leased or operated by such company or companies, whether in either case such ownership, control, or operation is acquired by purchase, lease, agreement or by any other means whatsoever;

"(b) every railway company operating or running trains from any point in the United States to any point in Canada;

"(c) every railway or portion thereof, whether constructed under the authority of the Parliament of Canada or not, now or hereafter owned, controlled, leased, or operated by a company wholly or partly within the legislative authority of the Parliament of Canada, or by a company operating a railway wholly or partly within the legislative authority of the Parliament of Canada, whether such ownership, control, or first mentioned operation is acquired or exercised, by purchase, lease, agreement or other means whatsoever, and whether acquired or exercised under authority of the Parliament of Canada, or of the legislature of any province, or otherwise howsoever; and every railway or portion thereof, now or hereafter so owned, controlled, leased or operated shall be deemed and is hereby declared to be a work for the general advantage of Canada."

The effect of this section, which was an amendment of the previous act, was that the British Columbia Electric Ry. as a whole was brought under the Board of Railway Commissioners' jurisdiction, and that the commissioners, upon application granted increases of fares to the company, full details of which were given in Canadian Railway and Marine World for Dec., 1919, pg. 666. Another was to bring to an end the investigation into the British Columbia Electric Ry.'s affairs, by the Public Utilities Commissioner of British Columbia, who had been authorized by the Legislature to determine whether the temporary increase of fare granted by the City of Vancouver was justified, and to fix the fare for the future. The abolition of the B.C. Public Utilities Commission followed at the legislature's last session.

The Minister of Railways, Hon. J. D. Reid, introduced Bill 135, in the House of Commons, May 17, which was read a first time, as follows:—

"1. Section 6 of the Railway Act, 1919, chapter 68 of the statutes of 1919, is amended by adding thereto the following subsection:—

"'(2) The provisions of paragraph (c) of this section shall be deemed not to include or apply to any street railway, electric suburban railway or tramway constructed under the authority of a provincial legislature, and which has not been declared to be a work for the general advantage of Canada otherwise than by the provisions of the said paragraph.'"

The Minister in explaining the bill said: "Sec. 6 of the Railway Act, passed at the last session, provided that any rail-

way under provincial jurisdiction which was leased or operated by another road wholly or partly within the legislative authorit yof the Dominion Parliament should be regarded as a work for the general advantage of Canada and therefore subject to the jurisdiction of the Board of Railway Commissioners. This clause was inserted to cover the case of the Quebec Central Ry., which, being part of the C.P.R. system, was under provincial as well as Dominion jurisdiction. We found afterwards that the clause had been so worded as to have the effect of taking in street railway lines, electric suburan railways and tramways built under the authority of a provincial legislature. This bill proposes to place these electric lines again under the jurisdiction of the provincial government. If I read the main clause of the bill its purpose will be explained."

The effect which this bill will have apparently is that rates fixed by the Board of Railway Commissioners for B.C.E. Ry. lines, which are not definitely under its jurisdiction, through being operated under Dominion charters and declared to be works for the general advantage of Canada, will cease to be operative, and the fares fixed in the municipal charters under which the lines were built will again come into effect.

Electric Railway Notes.

The Brantford, Ont., Railway Commission is reported to be considering the desirability of operating one-man cars on the municipal railway.

The Regina, Sask., City Council put a bylaw for the operation of one-man cars on the Regina Municipal Ry. through its initial stages, May 4. It will be voted on by the ratepayers at an early date.

The Brantford, Ont., Municipal Ry. Commission is, we are officially advised, considering one-man car operation, with the idea in view that in case any additional cars may be ordered this year, that type may answer the city's requirements.

A deputation representing the Toronto against the proposed purchase of one-street railway men's union waited on the board of control recently to protest man cars for Toronto Civic Ry. on the hackneyed ground that their use would slow up traffic and endanger the lives of passengers and pedestrians.

The Cape Breton Electric Co. expects to be in the market shortly for two or more passenger cars to replace those destroyed by fire at Glace Bay, N.S., in March. It is possible that some of the company's large steel cars may be diverted from city to suburban use, and safety cars bought for city service. The purchase of a new, or second hand, combination express car, line car and sweeper, is under consideration.

The Ontario Railway and Municipal Board advised the St. Thomas, Ont., city council recently that it was prepared to approve of the operation of one-man cars on the municipal railway there as soon as it was advised of the routes upon which they would be operated. A press report says the Board of Railway Commissioners has given the city authority to operate one-man cars on its line over certain crossings of steam railways in the city, upon the installation of semaphores and provision for the maintenance of watchmen. Another report states that seven of the city's cars have been converted for one man operation.

Mainly About Electric Railway People.

J. M. Ahearn, heretofore Assistant Superintendent and Purchasing Agent, Ottawa Electric Ry., has been appointed Assistant Manager and Purchasing Agent.

F. D. Burpee, heretofore Superintendent, has been appointed Manager, Ottawa Electric Ry., Ottawa, Ont. He was born at Ottawa, Ont., Apr. 25, 1876, and commenced railway work in 1891 on District 4, Eastern Division, C.P.R., Ottawa, and transferred to Ottawa Electric Ry. service in 1893, since when he has been, to 1896, stenographer, 1896 to 1898, cashier and paymaster, 1898 to Aug., 1912, accountant, during which time he also acted as assistant to the Secretary-Treasurer, and to the Superintendent. In Aug., 1912, on the resignation of J. E. Hutcheson, to become General Manager Montreal Tramways Co.'s service, he was appointed Superintendent. He enlisted in the 207th Battalion, C.E.F., in Feb. 1916,

Captain F. D. Burpee,
Manager, Ottawa Electric Railway.

and assisted in recruiting the battalion, and sailed for England as second in command in May, 1917, with the rank of Captain, where his battalion was eventually broken up. He then transferred to the Canadian Railway Troops, reverted to the rank of lieutenant and went to France July 7, 1917, and was engaged at points all over the British front. He returned to Canada early in 1919, and resumed his duties as Superintendent, Ottawa Electric Ry., in March of that year.

J. P. Daugherty, Manager, St. Thomas, Ont., Municipal Ry. for seven years, has resigned.

Capt. F. R. Glover, General Executive Assistant, British Columbia Electric Ry., is recovering from a broken knee cap.

John Patterson,—A life size picture of the late John Patterson was unveiled at the Dominion Power & Transmission Co.'s station in Hamilton, Ont., recently, by the company's President. Mr. Patterson was the principal promotor of the electric power development and electric railway lines in Hamilton and vicinity, now owned by the company.

A. J. Tobin, heretofore Chief Inspector, Car Service Department, Ottawa Electric Ry., has been appointed Superintendent. He has been in the company's service for over 25 years, originally as a conductor.

W. N. Warburton, Manager, London & Lake Erie Transportation Co., now in liquidation, the line having been dismantled, died at London, Ont., May 27, aged 65, after a long illness.

Electric Railway Finance, Meetings, Etc.

British Columbia Electric Ry. and allied companies:—

	Mar. 1920	Mar. 1919	9 mos. to Mar. 31, 1920	9 mos. to Mar. 31, 1919
Gross	$761,182	$649,120	$6,557,837	$5,390,119
Expenses	519,487	457,600	4,602,143	3,990,329
Net	241,695	191,520	1,955,694	1,399,790

Cape Breton Electric Co:—

	Mar. 1920	Mar. 1919	3 mos. to Mar. 31, 1920	3 mos. to Mar. 31, 1919
Gross	$44,751	42,924	$138,947	$138,078
Expenses	44,141	32,559	127,700	103,415
Net	610	10,365	11,247	34,663

Niagara Falls, Wesley Park & Clifton Tramway Co.—We are officially advised that the City of Niagara Falls, Ont., has not taken any further action in the direction of taking over the line in the city, and nothing has been done, so far as the company is aware, by the Ontario Railway and Municipal Board, in arranging for an arbitration as to the price to be paid for the property. The line is still being operated by the Niagara, St. Cathines & Toronto Ry., which owns it.

Ottawa Electric Ry.—Under the provisions of a mortgage trust dated June 29, 1897, 15 debentures, of $1,000 each, have been drawn for redemption, and will be paid with current coupons for interest thereon, July 5, at Ottawa, after which date interest on the debentures ceases.

St. Thomas Municipal Ry.—A press report states that the deficit on operation for April was $588.60, the smallest for some years. The number of passengers carried was 45,442, against 39,636 for April, 1919.

Toronto Ry., Toronto & York Radial Ry. and allied companies:—

	Mar. 1920	Mar. 1919	3 mos. to Mar. 31, 1920	3 mos. to Mar. 31, 1919
Gross	$1,255,668	$1,083,285	$3,499,871	$3,205,922
Expenses	794,212	647,053	2,299,684	1,902,546
Net	461,456	436,232	1,200,187	1,303,376

Winnipeg Electric Ry. and allied companies:—

	Mar. 1920	Mar. 1919	3 mos. to Mar. 31, 1920	3 mos. to Mar. 31, 1919
Gross	$456,915	$384,937	$1,400,625	$1,146,638
Expenses	353,234	285,040	1,046,470	839,964
Net	103,681	99,897	354,155	306,674

Surplus, after allowing for fixed charges, for March, $37,727.

Winnipeg Electric Ry. Co.—At a meeting of shareholders in Winnipeg, May 3, a resolution was passed authorizing the issue of $3,000,000 of new preferred stock to the funded floating debt. Subscribers will be given one share of common stock as a bonus, with every five shares of preferred stock allotted.

New Brunswick Electric Railway Taxation.—The New Brunswick Legislature has passed an act imposing taxes on certain incorporated companies and associations, as follows:—"Upon all street railway companies operating their lines within the province, not less than $50, nor more than $100 for each mile operated by any such company, in the discretion of the Lieutenant Governor in council."

Electric Railway Employes' Wages, Working Conditions, Etc.

Brantford Municipal Ry. employes asked recently for increased wages. The rate now paid to motormen and conductors is for first year, 39c. an hour; second year men, 41c., and third year, 43c., this being the maximum. The increase asked for is approximately 50%. The men now work nine hours a day.

Cape Breton Electric Co.—C. C. Curtis issued the following bulletin to trainmen, all divisions, May 4:—Effective May 1, 1920, wages of motormen and conductors, all divisions, will be as follows: 1st six months, 40c.; 2nd six months, 42c.; 2nd year, 44c.; 3rd and 4th years, 46c.; 5th and 6th years, 48c.; 7th year and thereafter, 50c. Every effort is being made to pay good wages in all departments, and I wish to again impress upon each and every one of you, that the man who does his work faithfully, loyally, conscientiously, and without constant thought of the clock and pay envelope, is going to get, under this management, just a little better treatment than the man who is always complaining, asking for more money and less work, and helping to increase the high cost of living. The one simple way in which each individual can help to reduce high costs, is to work a little harder and more intelligently, spend more carefully and save consistently. Application has been made for a 7½c. tram fare, but even when this is obtained gross earnings will hardly do more than pay daily operating expenses and taxes. Matters are really very serious and we are depending upon each and every one of you to co-operate in every way so as to promote the best interests of the company, the public and yourself." The wages paid heretofore ranged from 37c. to 42c.

Guelph Radial Ry.—We are officially advised that wages have been advanced on this municipally owned line. The old and new rates per hour are as follows:—

	Old.	New.
Motormen and conductors—		
First year . .	38c.	43c.
Second year . .	38c.	43c.
Third year . .	41c.	45c.
Barn men .	42c.	45c.
Foremen . .	42c.	47½c.
Track men . .	.....	40c.
Track foreman (a week)	$20	$25

Hamilton St. Ry.—A board of conciliation, consisting of Judge C. G. Snider, Chairman; G. S. Kerr, representing the company, and F. Bancroft, representing the employes, commenced its sittings in Hamilton, Ont., May 11, to deal with matters in dispute between the company and its employes respecting wages, working conditions, etc.

International Ry.—A press report states that employes of the International Ry., Buffalo, N.Y., which operates the Niagara Falls Park & Island Ry. in Canada, are asking for an increase of wages ranging from 83c. to 88c. an hour. The men now work a 9 hour day and are paid time and a half for overtime. It is further reported that the company recently refused to grant an 8-hour day, but offered an increase of wages with a maximum of 60c. an hour.

London & Port Stanley Ry.—The board of conciliation appointed on the London Railway Commission refused to accede to the demands of the men for a maximum rate of 65c. an hour, consisting of Judge C. G. Snider, Hamilton, Ont., chairman; J. M. Campbell, Kingston, Ont., representing the Commission, and B. W. Bennett, Sarnia, Ont., representing the men, sat in London, Ont., May 4 to 6, and presented a majority report to the Labor Department in which the following rates of pay per hour were recommended:—

Passengers and freight conductors and motormen:—	
1st year . .	46c.
2nd year . .	48c.
3rd year . .	50c.
4th year . .	52c.
Brakemen, 1st year	45c.
2nd year . .	43c.

In each case time and a half for overtime was awarded. These rates were those offered by the commission and rejected by the men prior to the formation of the board of conciliation. At a meeting of the commission May 13, it was decided to uphold the award. B. W. Bennett, representing the men, made a minority report, in which he recommended an increase of 15c. an hour over the old rates, to date from Feb. 1. The men refused to accept the majority award and went on strike May 14. A partial service was put in operation at once, after some repairs had been done to the overhead work. which was stated to have been maliciously damaged. The management improved the temporary service daily until on May 23, when it was nearly normal again, the strike collapsed and the man returned to work on the terms of the board of conciliation's award, a press report stating that an understanding was arrived at that if the management finds it favorable to pay higher wages in the future it will be done.

Montreal Tramways Co.—As stated in Canadian Railway and Marine World for May, pg. 256, the company's conductors and motormen had applied for very large increases in wages, the present rates and those asked being as follows per hour:—

	Present.	Asked.
First year .	37c.	.....
First 3 months	.....	70c.
Next 9 months	.....	73c.
Second year	40c.	.....
Third year .	44c.	.....
After third year	48c.	.....

The men also asked an 8-hour day, and that no overtime be worked. The company on May 7 declined to accede to the demands, informing the men's representatives that the allowances made by the Montreal Tramways Commission did not permit of any increase of wages, and that the revenue at present is only just sufficient to meet the present expenses.

On the same day, some of the company's officials waited on the Montreal Tramway Commission to discuss the matter, and were advised that in 1918 the men were given increases totalling $750,000, and in 1918 increases totally $1,250,000, and now they are asking for increases totalling $3,500,000. This amount could not be provided unless by increasing fares by at least 2c., and the commission was determined not to increase the fares this year. The commissioners further stated that it might be possible to provide funds for a bonus, but it would fall far short of the amount asked for by the men.

On May 10, another delegation waited on the commission and was informed what amount of bonus might be available (the amount of which, however, was not made public), and was further advised that the commission had not changed its attitude as to increasing fares this year. A press report stated that the amount offered as a bonus was approximately $500,000, while another report stated that it was between $250,000 and $300,000, and was to be distributed between the shopmen, the commission considering that the men on the cars were sufficiently paid. The commission is also reported to have offered an insurance and pension plan on the following basis:—A life insurance policy for $500, to be increased to $1,000 at the end of 5 years' service, and a pension at the age of 60, of 2% of wages earned, multiplied by the number of years' service. These offers were declined by the men on May 17, when it was decided to apply for a board of conciliation.

The Montreal Tramways Commission commenced on May 17 the publication of a series of full page advertisements, addressed to the Montreal public, giving reasons why the employes' demands could not be granted.

Niagara, St. Catharines & Toronto Ry. Disputes having been developed between the company and its employes, an ultimatum was presented to the management April 29, threatening an immediate strike unless the alleged grievances were redressed. E. W. Oliver, General Superintendent, intimated that the company was willing to submit the differences to arbitration. This was agreed to and a board consisting of County Judge Campbell, chiarman, W. J. Burgoyne, St. Catharines, representing the men, and C. G. McGhie, representing the company, was agreed to, and began its sittings in St. Catharines, Ont., May 5.

Nova Scotia Tramways & Power Co.—We are officially advised that a conditional increase of wages has been granted to all the company's employes. The maximum for motormen or conductors is 52c. an hour, and for operators on one-man cars 5c. an hour extra. The pay of operators, motormen and conductors is to be graduated according to length of service. The increases of pay will, it is stated, add $100,000 a year to the company's pay roll. The increases had not gone into effect when we were advised on May 3, but are said to be contingent upon the granting of authority by the Nova Scotia Legislature to the company to charge increased fares.

Ottawa Electric Ry.—A board of conciliation has been appointed by the Labor Department to arbitrate between the Ottawa Electric Ry. and its employes as to wages and working conditions. We are advised that G. D. Kelley is the company's representative, and A. E. Fripp, K.C., M.P., is the men's representative.

Quebec Ry., Light & Power Co.—The following joint schedule of rates, rules and conditions, governing employment of trainmen on the Montmorency Division was put in effect Mar. 16. Back time from Nov. 1, 1919, to Mar. 15, 1920, was paid on the basis of 9 hours a day on rates on this schedule, for employes in steam train service, and on the basis of 10 hours a day for employes in electric train service. The following table gives the new rates per day, and the old rates per hour, with a minimum of 10 hours:

	New per day.	Old per hour.
Way freight, steam or electric—		
Conductors . .	$5.40	48c.
Engineers or drivers	5.55	49c
Experienced brakemen	4.00	36c
Fireman . .	4.00	36c
Passenger and work steam trains—		
Conductors . .	5.10	45c
Engineers . .	5.55	49c
Experienced brakemen	3.70	33½c
Firemen . .	3.70	33½c
Passenger and work electric loco. train—		
Conductors . .	5.10	45c
Drivers . .	5.10	45c
Experienced brakemen	3.70	33½c
Trolleymen . .	3.70	33½c

Electric trains—		
Conductors over 1 year in service . .	5.00	42c
Conductors less than 1 year in service	4.60	39c
Drivers . .	5.00	42c
Experienced brakemen	3.45	30½c

One hundred miles or less in steam or electric locomotive service, or 8 consecutive hours or less in service (exclusive of meal hour) constitute a day. Overtime miles or hours to be paid pro rata.

One hundred miles or less in electric train service, or 8 hours or less in service, constitute a day. Overtime miles or hours to be paid pro rata.

Quebec Railway, Light & Power Co.—A Quebec press dispatch says that the company has recognized the Quebec National Fraternity of Street Railway Employes and has agreed not to employ conductors and motormen who are not members of it. It also says that wages on the city division, which theretofore ranged from 31c. to 38c. an hour, have been advanced to from 34c. to 48c. an hour, according to length of service.

Sandwich, Windsor & Amherstburg Ry. The employes of the Sandwich, Windsor & Amherstburg Ry., operating in Windsor and adjacent municipalities, which was taken over by the Hydro Electric Power Commission of Ontario, Mar. 31, were reported May 18 to be agitating for an increase of wages. The present scale ranges from 50c. to 60c. an hour, according to length of service.

Sarnia St. Ry.—A press report states that the employes have asked for a 50% increase of wages, and for an 8-hour day and time and a half for overtime. The men now work a 10-hour day, the average wages being stated to be $4 a day.

The Sarnia City Council is reported to have approved, May 17, of the following increased fare schedule for Sarnia St. Ry.:—Cash fare, 7c.; four tickets to be sold for 25c.; workingmen's tickets, 6 for 25c.; children's and beach tickets to remain as heretofore. Notice was given of a bylaw to confirm the new rates. The company will now, it is said, increase the wages of its men, who were asking for increases totalling $12,000 a year, which they were advised could not be granted without an increase of fares.

Toronto Ry.—The employes have presented a draft of a new wage agreement which they ask be put into effect on the expiry of the present agreement on June 15. The rate of wages asked for conductors and motormen is a flat one of 85c. an hour, the present rate being 52½c. for the first three months and 55c. for the next 9 months.

Winnipeg Electric Ry.—We are officially advised that the board of conciliation appointed to deal with the dispute as to wages, etc., between the company and its employes consists of Judge R. H. Myers, Winnipeg, chairman; C. E. Dafoe, Winnipeg, representing the company, and R. S. Ward, Winnipeg, representing the men.

The draft of the new agreement which the men asked the company to adopt was submitted April 8, and was proposed to run from May 1, 1920, to April 30, 1921. The proposed schedule of wages for motormen and conductors, compared with the schedule under the old agreement is as follows per hour:—

	Old		Proposed	
	Week-days	Sundays	Week-days	Sundays
First 6 months	46c.	51c.	80c.	90c.
Second 6 months	49c.	54c.	85c.	95c.
After 1 year	52c.	57c.	90c.	$1
After 2nd year	55c.	60c.	.....	.....

The proposed schedule also included the wages asked for all other employes, the increases asked for being on approximately the same scale. Some notable instances are:—

	Old scale.	Proposed Scale.
Machinists . .	70c.	$1.00
Machinists' helpers	43c.	74½c.
Wheelmen . .	53c.	82½c.
Blacksmiths . .	70c.	$1.00
Car Carpenters .	65c.	$1.00
Car inspectors	49c. to 52c.	85c.
Car cleaners .	40c.	75c.
Track laborers .	40c.	75c.

A. W. McLimont, Vice President, addressed the following letter to the Secretary of the Employes' Union, an receipt of the request for advances:—"I have carefully studied the draft agreement which you submitted intended to cover wages and working conditions of certain employes of this company for the ensuing year. Your demands are so extreme that the company is deprived of even being able to consider them as a basis for negotiations, and the amount involved (approximately $1,250,000) is so large that were it granted the railway fares would necessarily have to be increased to such an extent that many citizens who depend upon the service now supplied to them by this company would be deprived of it. As the revenue now derived would not provide the additional money, it must be apparent to you that, conceding any further wages demands must add to the fare the general public has to pay, and as the public is directly interested, the whole matter will have to be dealt with by the proper authorities."

Proposal to Acquire Windsor, Essex & Lake Shore Rapid Ry.

Municipal authorities in the municipalities served by the Windsor, Essex & Lake Shore Rapid Ry., in Western Ontario, have been supplied with copies of a blank resolution to be passed by municipal councils, as follows:—

Copy of resolution of the municipality of——

Moved by....., second by.....

That the Hydro Electric Power Commission of Ontario be requested to approach the said railway on behalf of the municipalities through which it operates. And (if the company indicates its willingness to sell) that the said commission be also requested to supply the municipalities with a report showing the estimated cost of the line equipment ready for satisfactory service, the probable future earnings and expenses. And that copies of this resolution be sent to the Secretary of the said commission and company respectively, as well as a request to the councils of the other municipalities interested, asking them to take similar action.

.....Reeve or Mayor.

I hereby certify the above to be a true copy of a resolution passed in open council by the .....of .....

.....Clerk.

Dated..... 1920.

Dominion Power & Transmission Co.'s Properties.—A press report of May 21 stated that the Hydro Electric Power Commission of Ontario had secured an option on the Hamilton Radial Electric Ry. from Hamilton to Oakville, Ont. E. P. Coleman, General Manager, Dominion Power & Transmission Co., is reported to have said, on the same day, that the situation as to the negotiations between the company and the commission was in no way changed. The commission's engineers had valued the company's plant and railways, and there were negotiations as to price. It was highly improbable that the commission would secure

The Hydro Electric Power Commission of Ontario's Proposed Electric Railways.

Ontario's Prime Minister, in addressing a delegation from municipalities interested in the building of the projected electric railways east and west of Toronto, recently, is reported to have said that as soon as the government is convinced that there will be no unnecessary duplication, and that the financial situation is such that the enterprises would not be unduly loaded up, and that labor and equipment are not so costly as at present, the government will be prepared to guarantee the bonds for construction. He counselled caution in regard to the situation.

Toronto City Council on May 10 decided to ask the Hydro Electric Power Commission to go ahead with the construction of the Toronto-Bowmanville line, independently of a provincial guarantee of bonds. Pickering Tp. is reported to have passed a similar resolution. This would involve the purchase of the uncompleted Toronto Eastern Ry. from the Canadian National Rys.

It is, however, to the lines west of Toronto that attention is being more particularly directed at present. Bylaws for the construction of a line from Toronto via Port Credit, Guelph and Stratford to London; for a line from Port Credit to Hamilton; a line from Hamilton via Guelph to Elmira, and for lines in the Niagara peninsula have been passed, and of these the commission desires to proceed with the construction of the Toronto-Port Credit section, 15 miles, and from Port Credit to St. Catharines, 60 miles, which with the Toronto Eastern Ry. would give a continuous line from Bowmanville to St. Catharines, 118½ miles.

Questions in the Ontario Legislature on May 7 elicited the fact that the commission had secured authority by order in council, or otherwise, to proceed with the construction of an electric railway from Port Credit through St. Catharines; that municipal bonds had been actually issued to finance construction; that the government had guaranteed the bonds and otherwise endorsed the financing of the line, and that the right of way was being secured. A press report states that an issue of bonds for $11,360,000 was authorized Aug. 8, 1919, and that of these $1,050,000 worth had been endorsed by the present government.

In order to provide for the construction of the line from Toronto to Port Credit, as part of the line to St. Catharines, the municipalities have passed resolutions of agreement. The right of way for the line is reported to have been bought.

Niagara, St. Catharines & Toronto Ry.'s future.—In connection with suggestions that certain sections of the Canadian National Ry. and the Grand Trunk Ry. be taken over by the Hydro Electric Power Commission of Ontario and electrified, the question of the purchase of the Niagara, St. Catharines & Toronto Ry. and its incorporation in the commission's Niagara peninsula plans has been discussed. Some conferences between Sir Adam Beck and the Minister of Railways have taken place at Ottawa, and it is reported that the Dominion Government is of opinion that it would be poor business policy to get rid of any of its lines that are paying.

Marine Department

Canadian Government Merchant Marine, Ltd. Annual Report.

The Canadian Government Merchant Marine Ltd. directors' first annual report for the calendar year 1919 has been issued over the signature of D. B. Hanna, President, addressed to the shareholders, as follows:—

Inception.—Early in 1918 the Dominion Government, owing to the serious loss of world tonnage, realized the imperative need of Canada creating, owning and operating a strong merchant marine of her own. Accordingly orders were placed with shipbuilding firms throughout Canada for the construction of steel cargo ships. The total tonnage contracted for amounts to 380,140 d.w. tons, of the following standard type ships:—

Type	Tonnage	No. ordered
1	10,800	2
2	8,300	25
3	5,100	8
4	4,500	8
5	3,400-3,900	17
6	2,800	3
		63

These ships were intended primarily to co-operate with British shipping in supplying the necessities of war, and in times of peace to provide the means of carrying abroad the products of Canada's farms, forests, mines and factories, without which Canada could not hope to take full advantage of the opportunity of expanding her export trade.

Ships Delivered.—There were delivered prior to Dec. 31, nineteen of these ships. The majority of the balance will be delivered during 1920.

Terms of Transfer.—An order in council passed Mar. 16, 1920, provides for all of the ships on completion being turned over to Canadian Government Merchant Marine Ltd. for operation. The arrangement is generally that each ship on completion will be sold to a separate ship company, bearing similar name to that of the vessel, such as "Canadian Voyageur Ltd.," etc., the Government to receive in payment therefor demand notes representing the cost price of the ship bearing interest at 5½% a year secured by mortgage on the ship, and all of the issued capital stock of the said company. The stock of the separate company, known as the owning company, is in turn exchanged by the government for an equal amount of stock of the Canadian Government Merchant Marine Ltd., which is held by the Minister of Finance, the stock of the owning companies being held by Canadian Government Merchant Marine Ltd.

The Result of Operations for the first year ended Dec. 31, 1919, is as follows, viz., from Mar. 2 to Dec. 31.

Closed Voyages.

Revenue from ships		$2,770,049.09
Other revenue:		
Commission and agency fee on landing of s.s. Juil	$ 869.66	
Interest	8,715.23	
		9,584.89
Total revenue		$2,779,633.98
Expenses:		
Operation of ships	$1,621,999.46	
Operation of wharf	36,475.91	
General expenses:		
Office salaries	$41,013.44	
Printing and Stationery	6,825.15	
Advertising	2,740.10	
Cables, telegrams and telephones	3,404.95	
Miscellaneous	9,612.78	
Loss on exchange	794.81	
	64,391.23	
		1,722,866.60
Operating profit closed voyages		$1,056,767.38

Open Voyages.

Balance open voyages accounts	$415,724.92
Complete statement of disbursements, and operating expenses on account of these voyages has not been received, but it is estimated the result will show a net profit of approximately	$ 350,000.00
Total profit for period	$1,406,767.38

Rates.—During the year, opportunities offered for taking advantage of some very profitable voyages, but as this would have taken the ships out of the Canadian trade, it was considered more important to develop Canadian trade by keeping them in service to and from Canada, at a reasonable profit, rather than to take advantage of higher rates and have some of the ships trading between foreign ports. It should be borne in mind that the company's ships were in service for a portion of the year only—the first voyage being made by the Canadian Voyageur in Mar., 1919. At this time the United States Shipping Board had become a factor in rate making, and the high ocean rates prevailing previously were considerably reduced. In view of this, the results shown may be considered as highly satisfactory.

Trade Routes.—Regular sailings have been established to London, Liverpool and Glasgow; to South America, calling at Pernambuco, Bahai, Rio de Janeiro and Buenos Ayres; and to the West Indies, calling at Havana, Kingston, Trinidad, Barbadoes and Demerara, etc. Sailings have also been made to Bordeaux and Le Havre. In all 47 trips were made during 1919, as follows:—To the West Indies; 23; South America, 3; United Kingdom from Atlantic ports, 11; United Kingdom from Pacific ports via Panama Canal, 3; French ports, 2; Newfoundland, 5. Of the total voyages only 28 were completed in time for the accounts to be closed before Dec. 31. Further trade routes are being established, including regular sailings to Australia and New Zealand, and additional services are in contemplation, which will be inaugurated as further ships are delivered by the builders.

Commodities.—The value which the merchant marine has been to the Canadian trade is best evidenced by the list of some of the commodities carried during the year, as follows:—Exports: Wheat, flour, grain, hay, lumber, wood pulp, pulp board, paper, dressed meats, canned goods, fish, groceries, confectionery, cement, rubber goods, hardware, furniture, automobiles, agricultural machinery, steel billets, steel ship plates, etc. Imports: Manufactured articles, sugar, seeds, dye stuffs, rice, wool, hides, cotton goods, dry goods, tea, coffee, etc.

Insurance.—Under an insurance contract made by your directors, all ships are fully covered by insurance at very favorable rates and covers.

Accidents.—The only serious difficulty encountered by your ships was in the case of the Canadian Recruit and the Canadian Spinner. These ships sailed from Montreal in clear weather on Dec. 8, 1919, but after leaving Quebec met with very bad weather, and both ships became entangled in ice fields. The Canadian Recruit, after having her steering gear torn away by the ice, got out of control, and was stranded on Vache Reef, at the mouth of the Saguenay River, on Dec. 20. The ship is still lying there, and the amount of damage cannot be ascertained until the river is free from ice. Any loss is fully covered under our insurance contract. The Canadian Spinner had a most perilous trip of three weeks down the river, constantly in danger from the ice. The government icebreaker Montcalm, which was sent to rescue her, succeeded, after much difficulty, in reaching her and escorted her safely into dock at Halifax on Jan. 15, 1920, no serious damage having resulted.

Co-operation with Canadian National Rys.—The fleet of the merchant marine forms a most important ally to the national system of railways, and enables the railway to obtain large through shipments of freight to Atlantic and Pacific ports which would be lost to the national system if it were not for the steamship connections of the Canadian Government Merchant Marine Ltd.

Prospects.—In view of the difficulties necessarily involved in establishing such a business, and the extraordinary expenses incurred in pioneering new routes, the result for the first year is considered satisfactory. Your directors look forward with confidence, notwithstanding increasing competition and decreasing rates, to a year of progress in 1920. Having regard, however, to the fact that all of your company's ships have been built since the war began, the cost of construction has been much higher than prevailed before hostilities, so that the interest, depreciation and insurance expenses on your ships are much higher than obtains on those of your competitors, whose fleets, even after taking into

Dominion Marine Association.

President, A. E. Mathews, Managing Director, Mathews Steamship Co., Toronto.

First Vice President, H. W. Cowan, Director of Operation, Canada Steamship Lines, Montreal.

Second Vice President, A. A. Larocque, President, Sincennes-McNaughton Line, Montreal.

Executive Committee, E. H. Beazley, Union Steamship Co. of British Columbia, Vancouver; W. E. Burke, Canada Steamship Lines, Montreal; T. R. Enderby, Montreal Transportation Co., Montreal; L. Henderson, Montreal Transportation Co., Montreal; W. J. McCormack, Algoma Central Steamship Line, Sault Ste. Marie, Ont.; G. J. Madden, George Hall Coal Co. of Canada, Montreal; E. W. Oliver, Niagara, St. Catharines & Toronto Navigation Co., Toronto; W. H. Smith, Ontario Car Ferry Co., Montreal; J. F. Sowards, Sowards Coal Co., Kingston, Ont.; J. F. M. Stewart, Point Anne Quarries Ltd., Toronto; Jno. Waller, Keystone Transportation Co., Montreal; Lorne C. Webster, Webster Steamship Co., Montreal; J. Wilkie, Imperial Oil Ltd., Toronto; A. A. Wright, honorary member, Toronto.

General Counsel, Francis King, M.A., Kingston, Ont.

Official Organ, Canadian Railway and Marine World, Toronto.

consideration their new tonnage, would not nearly equal per ton deadweight the cost of the Canadian Government Merchant Marine Ltd. fleet. Your ships will also be competing on some trades against ships carrying foreign crews. It will be seen, therefore, that while a satisfactory business is being done, and much new trade developed, large profits should not be looked for.

Management.—Your directors are pleased to be able to say that the management of your ships is entirely in the hands of Canadians. All of the officers of the boats are British, and 80% of them Canadian. The organization of the company has entailed heavy work on the part of the company's officers and staff. To them the board wish to express their thanks for the loyal and efficient services rendered throughout the year.

Balance Sheet, Dec. 31, 1919.

ASSETS.

Current assets:		
Cash in banks and on hand		$ 432,476.39
Dominion of Canada, Victory Loan, 1919		500,000.00
Accounts receivable		502,155.18
Advances to captains, crews and agents		23,270.88
Insurance claims, estimated amount recoverable		24,893.35
Interest receivable accrued		4,583.33
Inventories of stores and supplies		1,959.71
		$1,489,338.84
Insurance unexpired		505,284.27
Fixed assets:		
Office furniture	$7,611.10	
Automobile	890.93	
		8,502.03
		$2,003,125.14

LIABILITIES.

Accounts payable	$ 530,632.84
Balances of uncompleted voyages	415,724.92
Surplus, profit for period from Mar. 2 to Dec. 31, 1919	1,056,767.38
Contingent liabilities, none ascertained	.....
	$2,003,125.14

The directors are: D. B. Hanna, President, Toronto; A. J. Mitchell, Vice President, Toronto; E. R. Wood, Toronto; R. Hobson, Hamilton; Major G. A. Bell, Ottawa; Sir Hormisdas Laporte, Montreal; A. P. Barnhill, St. John, N.B.; Thos. Cantley, New Glasgow, N.S.

The officials are: R. C. Vaughan, Assistant to President, Toronto; R. P. Ormsby, Secretary, Toronto; C. E. Friend, Comptroller, Toronto; H. G. Foreman, Assistant Treasurer, Toronto; R. B. Teakle, Manager, Montreal; Wm. Phillips, European Manager, London, Eng.; H. Milburne, Asst. to Manager, Montreal; I. J. Tait, Superintending Engineer, Montreal; D. O. Wood, Traffic Mgr. Exp. and Imp. Dept., Toronto; W. A. Cunningham, Exp. and Imp. Frt. Agent, Montreal; Geo. Bunting, General Agent, Toronto; F. A. Young, General Agent, New York, N.Y.; B. C. Keeley, General Agent, Vancouver, B.C.

Panama Canal Tolls on British Ships. A Washington, D.C., dispatch states that the British Embassy there has announced that it is authorized to deny reports that the British Government is rebating to British ships the tolls paid for passage through the Panama Canal, it only paying such tolls in cases where it has ships on time charter.

Pacific Coast Tide Tables.—The Naval Service Department's Tidal and Current Survey has issued tide tables for the Canadian Pacific Coast for 1920, including Fuca Strait, Georgia Strait, and the northern coast, with data for slack water in the navigable passes and narrows, and information on currents. It will be mailed free, on request to the Tidal and Current Survey, Naval Service Department, Ottawa.

Canadian Pacific Ocean Services, Ltd., Pacific Service.

W. T. Marlow, General Freight Agent, Canadian Pacific Ocean Services, has given the following particulars regarding the sailings of the company's ships from British Columbia to the Orient:—

Up to recently we had a very large movement of coolies returning from France to China to take care of, which movement lasted during the latter half of 1919, and throughout the early part of this year. This transportation has been completed and the space that was utilized for their accommodation is now available for commercial cargo. There is no congestion at Vancouver, and space is available for all cargo offering from Canada; in fact, to supply the cargo required, we have to book largely from the United States market. At present we maintain three sailings monthly with the following ships:—

Empress of Russia, Yokohama, Kobe, Nagasaki, Shanghai.

Empress of Asia, Hong Kong and Manila.

Empress of Japan, Yokohama, Kobe, Nagasaki, Shanghai, and Hong Kong.

Monteagle, Yokohama, Kobe, Moji (Japan), Shanghai and Hong Kong.

Methven, Yokohama, Kobe, Shanghai, Hong Kong, and Singapore.

This service will be augmented by the addition of the Mattawa, which will leave England shortly via the Suez for the Orient, and should arrive in Vancouver in time to load from that port, June 28. This ship will make the same ports of call as the Methven in the Orient.

In the development of the trans-Pacific trade, we are confining ourselves exclusively to our regular ports of call, as our present arrangements admit our acceptance of shipments for interior points in China and Japan, as well as outports in Borneo, Celebes, Ceylon, Formosa, French Indo-China, India, Java, Korea, Manchuria, Phillipines, New Guinea, Siam, Sumatra, Straits Settlements, Siberia, etc. Through bills of lading are issued to such ports from any point in Canada or the United States by the C.P.R.

Proposal for Government Supervision of Steamship Companies.

J. E. Armstrong, M.P. for East Lambton, Ont., gave notice recently that he would move in the House of Commons as follows:—"That, in the opinion of this house, the recommendations set forth in the final report of the Royal Commission on the Natural Resources, Trade and Legislation of certain portions of His Majesty's Dominions, and presented to both Houses of Parliament by command of His Majesty, in Mar., 1917, showing that it is not desirable that the operations of the steamship companies carrying passengers and freight between the Dominion of Canada and the United Kingdom should remain longer without some measure of government supervision, should be given effect; and that this government should take immediate steps to assist the Imperial Government in bringing about government control of the ocean carriers doing business (or, from time to time, doing business) between ports in the United Kingdom and ports in the Dominion of Canada, and that a permanent commission representing all parts of the Empire be established, which shall be invested with wide powers relative to transportation on the high seas; such powers, as far as possible, to be similar or analogous to those which have been conferred in Canada and in other Dominions upon permanent commissioners charged with the supervision and control of railway and steamship rates and their methods and conditions of operation."

On the order for the motion being reached in the House of Commons May 5, Mr. Armstrong asked if the acting Prime Minister was prepared to accept it. Sir Geo. Foster replied: "No, I am afraid not. I would advise my friend to drop it. But if he wishes to make any remarks in reference to it, he may let it stand and I am prepared to hear what he has to say." Mr. Armstrong then said that under the circumstances he would drop it.

Is There a Ship Brokers' Combine in Winnipeg?

Lt.-Col. C. W. Peck, V.C., M.P. for Skeena, B.C., asked the following questions in the House of Commons May 5: Is the Government aware of any combination of vessel brokers in the Winnipeg Grain Exchange formed since 1914? Was this combination in the nature of pooling their interests? Was such pool recognized by the Canadian Wheat Board and did such board authorize its continuance and recognize it as a proper and reasonable organization for such a purpose? Did the government aid such pool? Who were the members of the Winnipeg Grain Exchange who compose this combination or pool? Was the present chairman of the Canadian Wheat Board or his immediate business associates connected with the combination? Who were the vessel brokers who were members of the Winnipeg Grain Exchange at the time of the outbreak of the war? Among these, who enlisted for overseas service and in what capacity? Are any of these overseas men still members of the Exchange, and who are they? Did any of these men apply for admission to the pool mentioned above after returning from the war, and if so, with what result? Does the government or Canadian Wheat Board purpose the allowance of the continuation of such a pool, and if so, will members of the Exchange who performed overseas service be permitted to become associated with and enjoy the benefits derived from such organization?

Sir Geo. Foster replied:—"These questions refer to matters entirely within the competence of the non-governmental agencies and agents therein mentioned, with the organization and operation of which the government has nothing to do and of which it has no records."

Government Shipbuilding in Great Britain.—A dispatch states that the British Ministry of Shipping's expenditure has exceeded its estimates by £100,000,000, the actual excess in expenditures being £85,000,000, with a deficiency of £15,000,000 in the amounts realized on account of appropriations. The expenditure included £8,800,000 for shipbuilding abroad, for which the final accounts had not been received. The concrete shipbuilding plan, for which special yards were laid out, shows a loss of £2,500,000.

Saguenay River Dredging. The Minister of Railways and Canals stated, in the House of Commons, recently, that the cost of dredging the Saguenay River was $522,867.41. The depth of the channel is 16 ft. The government is not aware that at certain places there are land slides which may block the channel.

Canada Shipping Act (Pilotage) Amended.

On motion of the Minister of Marine, Hon. C. C. Ballantyne, the House of Commons went into committee, on Apr. 30, on the following proposed resolution: "That it is expedient to amend the Canada Shipping Act, by repealing sec. 434 thereof, which relates to the mode of altering pilotage rates for and below Quebec, and to provide that the said section should be deemed to have been repealed on and from June 12, 1914."

Sec. 434, referred to in the resolution above, was as follows:—"The rates of pilotage now in force for and below Quebec shall not be altered unless at any time the share of the net income of the Quebec Pilots Corporation, annually accruing to each member of the said corporation, acting and practising as a pilot for and below the harbor of Quebec, has been less than $600 on an average, for three consecutive years immediately preceding; in which case it shall be the duty of the Minister to submit to the Governor in council, for approval, a bylaw establishing such increased rates of pilotage, or pilotage dues, as are deemed necessary for the purpose of securing to each such pilot an average annual share of not less than $600 of such net income, and in like manner thereafter, to submit for approval a further bylaw whenever such annual average share for three successive years, for each pilot shall not amount to $600.

"2. Nothing in this part shall be construed to give power to the Minister to make regulations respecting the management or maintenance of pilot boats, or respecting the administration or distribution of the earnings of pilots and pilot boats."

The proposed resolution was discussed as follows:—

Mr. Ballantyne: Under the Canada Shipping Act, sec. 434, no alteration can be made in the pilotage dues for the Quebec District unless the average income for each pilot for three years had been less than $600 a year. This is a statute that was framed very many years ago, and we all know that the cost of living has very greatly increased since and especially during the past few years. Although the Quebec pilots have made an arrangement with the Marine Department, and also with the shipping interests, for the season of 1920, the object of this resolution is to enable me to introduce a bill eliminating this restriction of $600, so that if it should be deemed advisable in the future to change the tariff it can be done.

T. Vien: Will it open the door to a reduction?

J. H. Sinclair: Why does the Minister go back to June 20, 1914?

Mr. Ballantyne: I submitted this to the Justice Department, which pointed out to me that owing to chap. 48 which was assented to on June 12, 1914, it would be necessary to make this resolution and the bill based upon it date from June. It is purely a technical, legal matter to conform to the regulations of the Shipping Act.

Mr. Sinclair: Will it have the effect of increasing the salaries of the pilots from 1914 up to the present?

Mr. Ballantyne: All arrangements have have been made for the season of 1920 and I do not know whether the pilots of Quebec will ask in the future for an increase in the tariff or not, but in view of the fact that no change can be made in the tariff under sec. 434 unless their income is less than $600 a year for three consecutive years, I merely want to remove that restriction, so that if the Quebec pilots should at any time in the future make a request to increase the tariff the department would be able to do so provided their claims were well based.

Hon. W. S. Fielding: Will the Minister specify any figure or eliminate it altogether?

Mr. Ballantyne: Eliminate it altogether.

Mr. Fielding: There will be no limit?

Mr. Ballantyne: No.

H. E. Lavigeur: Are the Quebec pilots making a demand for an increased tariff?

Mr. Ballantyne: The Quebec pilots did make a request to the department and also to the shipping people. We were unable to alter the tariff owing to this clause in the Shipping Act, which stated that their minimum income must be less than $600 for three years to enable us to increase the tariff, but as some compensation there has been an arrangement arrived at whereby they will receive a bonus.

The resolution was reported, read a second time and concurred in, and Mr. Ballantyne then introduced bill 94, to amend the Canada Shipping Act (Pilotage), in accordance with the resolution.

The bill was read a second time May 4 and, on the House going into committee, was discussed as follows:—

D. D. McKenzie: I understand the system of pilotage, or the laws dealing with pilotage, in Halifax and Sydney have been changed. Is there any change in method, or is there any proposed change in method of operating those pilotage systems or combinations in other parts of the country, or are they to go on as before?

Mr. Ballantyne: The member will no doubt recall that, at the session of Parliament, a year ago, I introduced in the house a bill that was passed giving the Governor General in council authority to make the Minister of Marine the pilotage authority and to take over such districts as Sydney, St. John, Vancouver and Victoria. The pilotage districts of Montreal and Quebec have been under the Minister of Marine for quite a number of years, and the pilotage authority at Halifax was placed under the same minister under the War Measures Act in 1918. The bill that I introduced a year ago vested the pilotage districts that I have mentioned in the Governor in council and the Minister of Marine. I shall be very glad to give further details when the pilotage items in the marine estimates are reached. The object of the present bill is merely to make a change in the shipping law, so that it will be possible for the Quebec pilots to get an increase in tariff if that is found necessary. If we do not make the change that the bill calls for, there can be no increase in the pilots' tariff until the minimum salary of the Quebec pilots for three consecutive years falls below $600 a year. I am sure members will agree that $600 a year as a remuneration for pilots may have been all right a great many years ago, but is altogether too low at present. While the subject is not up at present, I am having this change made in the act so that if it was thought fit in the future to make any change in the tariff with respect to the Quebec pilots I might be free to do so.

Mr. Sinclair: What was the average amount received by the Quebec pilots last year?

Mr. Ballantyne: The average earnings of the 61 pilots in the Quebec district last year amounted to $2,452.30.

Mr. Sinclair: Then this bill relates not to the salaries of the pilots, but to the rates to be charged by the pilots on shipping coming up the St. Lawrence. Am I not correct in that? There is a restriction in the law at present against increasing the rates to be charged ships by the pilots until the salaries of the pilots shall be less than $600. That is not likely to take place, because the pilots are getting about four times as much at present, but this legislation, as I understand it, opens the way to an increase in the pilotage rates.

Mr. Ballantyne: The member is quite correct, but even if it were mutually agreed between the Quebec pilots, the Marine Department and the shipping interests that the present tariff of the pilots should be increased, which would mean that their earning power would be greater than the average I have given, I would be quite unable to make the increase, because of the existence of the old statute referred to, which provides that no change can be made in the pilotage tariff unless the annual income of the pilots is less than $600 a year for three consecutive years. No such restriction as this exists in the case of any other pilotage system, and I desire to have it eliminated, so that if the time should ever come when it was deemed fair and right to increase the tariff we may be able to do so.

Mr. Sinclair: Then it is not intended at present to make any increase in the rates?

Mr. Ballantyne: No.

The bill was then reported, read the third time and passed.

Litigation over French Steamships built in British Columbia.—A series of actions were commenced in British Columbia recently, by Raymond Van Hemelryck, a Belgian residing in France, against the Northern Construction Co., the Pacific Construction Co., and the New Westminster Construction & Engineering Co., for the return of money paid on deposit, less certain allowances for material purchased, etc. It appears that plaintiff ordered through Anderson & Co., ship brokers, New York, 10 wooden steamships of 3,200 tons each, and these orders were distributed by Anderson & Co., as follows: 4 to Northern Construction Co., 3 to Pacific Construction Co., and 3 to New Westminster Construction & Engineering Co., at an average cost of $640,000 each. A deposit of 15% was made with bankers in New York, and a further deposit was to have been made, but was not, and the builders exercised their right to cease the work. The defence set up was that there was no contractual relation between the parties, and on the hearing of the case against the New Westminster Contracting & Engineering Co., that point of law was argued and held, and the case was dismissed. As the cases against the other defendant companies were precisely similar, they are being dealt with accordingly.

Shipping Rates and Wages.—At the Cunard Steamship Co.'s annual meeting in Liverpool, Eng., recently, Sir Alfred Booth, Chairman, is reported to have stated that he was quite prepared for a slump in freight rates, that the sooner the storm was over the better, and that he hoped it would result in a definite break in the vicious circle of rising wages and rising prices.

Canadian Government Merchant Marine, Ltd., Shipbuilding, Operation, Etc.

Contracts Placed Without Tenders.—Canadian Railway and Marine World for May contained a full report of the Minister of Marine's speech, in the House of Commons, on Mar. 23, on the government's shipbuilding programme. When the debate was continued on Mar. 30, the Minister replied to Hon. Mr. Mackenzie King's contention that public tenders should have been asked for building the ships, and was reported to have said:—"The statute from which he (Mr. King) has quoted makes it plain that the Minister has power to use his best judgment, and the government to purchase by the best means, what it requires."

We are officially advised that what Mr. Ballantyne did say was: "The statute from which he (Mr. King) has quoted makes it plain the Minister has the power to place contracts where an emergency exists, without calling for public tenders. I claim that two emergencies existed: (1) The absolute necessity of having the ships built as speedily as possible, as they were urgently required, and (2) To find employment for both skilled and unskilled labor, and also for the large number of returned soldiers who were coming back to Canada after the signing of the armistice. Therefore, there can be no question about the existence of the emergencies, and that the government was quite justified in placing the contracts in the manner in which it did, and which I assert was in the best public interests."

Keels Laid.—Since Canadian Railway and Marine World for May was issued, we have been advised of the laying of the following keels of steel cargo steamships for Canadian Government Merchant Marine Ltd.

S.s. Canadian Coaster; Marine Department contract 58; builder's yard no. 16; approximately 3,890 d.w. tons; Collingwood Shipbuilding Co., Kingston, Ont.; May 6.

Marine Department contract 59; builder's yard no. 8; approximately 2,800 d. w. tons; Nova Scotia Steel & Coal Co., New Glasgow, N.S.; May 4.

Launchings of steamships.—Since Canadian Railway and Marine World for May was issued, we have been advised of the following launchings of steel cargo steamships for Canadian Government Merchant Marine Ltd.:—

May 7, S.s. Canadian Hunter; Marine Department contract 18; builder's yard no. 460; approximately 5,100 d.w. tons; Davie Shpibuilding & Repairing Co.; Lauzon, Levis, Que.

May 8, S.s. Canadian Runner; Marine Department contract 32; builder's yard no. 43; approximately 4,575 d.w. tons; Port Arthur Shipbuilding Co., Port Arthur, Ont.

Deliveries of steamships.—In addition to the steel cargo steamships mentioned in Canadian Railway and Marine World previously, the following deliveries have been made to Canadian Government Merchant Marine Ltd.

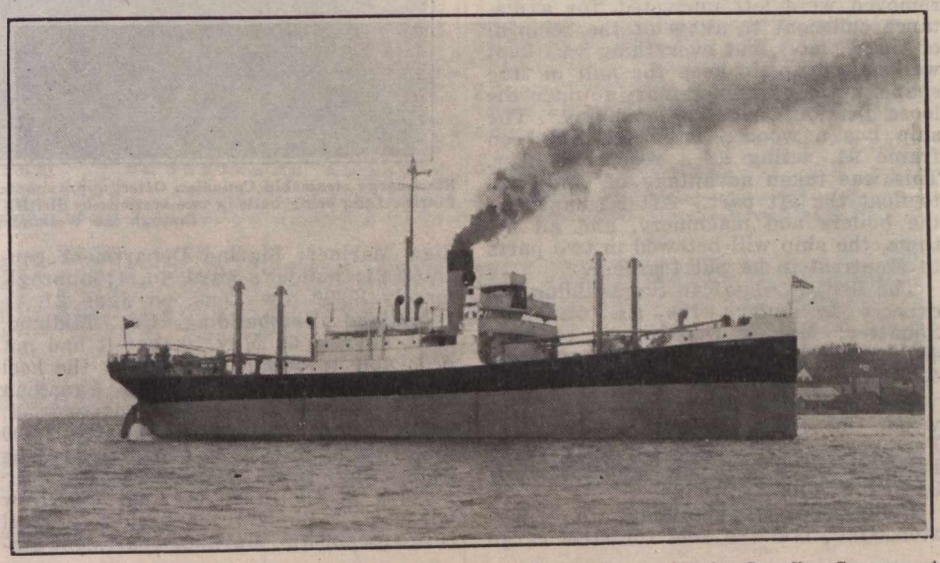
April 28; s.s. Canadian Farmer; Marine Department contract 46; builder's yard no. 65; approximately 3,990 d. w. tons; built by Collingwood Shipbuilding Co., Collingwood, Ont. This ship went to Huron, Pa., and took a cargo of coal to Montreal, where she was loaded with general cargo for Havana, Cuba, and sailed May 19.

May 7. The s.s. Canadian Planter, Marine Department contract 28; builder's yard no. 72; approximately 8,390 d. w. tons; built by Canadian Vickers Ltd., Montreal, which was delivered to the Marine Department, at Quebec, Dec. 27, 1919, and which remained there all winter, made her trial trip to Montreal recently, and was delivered to Canadian Government Merchant Marine Ltd., for operation May 7. She was loaded at Montreal for South America, with paper, malt, lumber, agricultural machinery, etc., and sailed May 15.

May 7; s.s. Canadian Miner; Marine Department contract 41; builder's yard no. 6; approximately 2,800 d.w. tons; built by Nova Scotia Steel & Coal Co., New Glasgow, N.S. This ship is carrying coal between Sydney, N.S., and Levis, Que.

May 11; s.s. Canadian Beaver; Marine Department contract 31; builder's yard no. 15; approximately 3,990 d.w. tons; built by Collingwood Shipbuilding Co., Kingston, Ont. She sailed for Montreal the same day, where she loaded cargo for Jamaica and Cuba, and sailed May 18.

May 12; s.s. Canadian Sealer; Marine Department contract 40; builder's yard no. 5; approximately 2,800 d. w. tons; built by Nova Sotia Steel & Coal Co., New Glasgow, N.S. She is carrying coal between Sydney, N.S., and Levis, Que. This ship was delivered to the Marine Department Dec. 20, 1919, but was not transferred to Canadian Government Merchant Marine until May 12.



Steel cargo steamship, Canadian Beaver; approximately 3,990 d.w. tons; built for Canadian Government Merchant Marine Ltd., by Collingwood Shipbuilding Co., Kingston, Ont.

Officers of Steamships.—The following officers have been appointed by Canadian Government Merchant Marine Ltd. The first column contains the names of the ships, the second those of the captains, and the third those of the chief engineers:—

Canadian Farmer	A. St. A. Robertson	L. O. Lamoreux
Canadian Farmer	W. Larmour	A. J. Griffiths
Canadian Planter	F. Ferguson	S. Evans
Canadian Seigneur	H. E. Webb	D. Cameron

Freight Rates.—J. H. Sinclair, M.P. for Antigonish and Guysborough, N.S., asked in the House of Commons recently: "Are the rates of freight charged by Canadian Government Merchant Marine subject to the control in any way of the United States Shipping Board?" The Minister of Marine answered "No."

Inquiries re C. G. M. M. Ltd.—J. H. Sinclair, M.P. for Antigonish and Guysborough, N.S., asked the following questions in the House of Commons recently, the answers being given by the Minister of Immigration, Hon. J. A. Calder:

"Who are the shareholders of the corporation known as Canadian Government Merchant Marine?" Answer: "All of the issued capital stock of the Canadian Government Merchant Marine, Ltd., less directors' qualifying shares, are owned by His Majesty the King and held by the Minister of Finance and Receiver General of Canada."

"Did the shareholders invest any of their own money in this venture? If not, who furnished the capital?" Answer: "The total investment in the Canadian Government Merchant Marine is made by the Government."

"Who are the directors?" Answer: "D. B. Hanna, Mr. A. J. Mitchell, Major G. A. Bell, E. R. Wood, Robt. Hobson, Sir Hormisdas Laporte, A. P. Barnhall, Thos. Cantley."

"Is there a separate company or corporation for each ship?" Answer: "Yes."

"In what names does the title to the ship stand on the registry?" Answer: "Title to each vessel will stand on the registry in the name of the separate ship company, with a mortgage thereon in favor of His Majesty the King."

"Does the Department of Railways and Canals receive a statement at stated periods from the Canadian Government Merchant Marine showing the profits and loss of the business? If so, how often?" Answer: "A statement of the operations of the Canadian Government Merchant Marine, as furnished to the directors at their regular meetings, is supplied both to the Department of Railways and to the Department of Marine."

"Who is responsible to the ratepayers for the conduct of the business carried on by the Canadian Government Merchant Marine?" Answer: "The Government."

"Is a separate account kept for each ship?" Answer: "Accounts are kept showing, separately, the operation of each vessel."

"Whate rate of insurance is being paid on the hulls of ships belonging to this company?" Answer: "Arrangements for insurance and rates are made by the operating company. Rates of insurance

vary from time to time and lowest tenders are accepted."

The s.s. Canadian Recruit, which after being caught in the ice below Quebec early in the year, and stranded at Vache Point, at the mouth of the Saguenay River, was abandoned to the underwriters, will probably be salvaged, the work having been taken in hand by the Canadian Salvage Association. The wrecking steamship Lord Strathcona, with a tug and barge, were dispatched to the ship during May, and a new type of salvage gear, imported from England recently, and similar to that used during the war for salving sunken vessels, is to be used.

British American Shipbuilding Co., Welland, Ont., as stated in Canadian Railway and Marine World for May, launched the s.s. Canadian Otter; Marine Department contract 44; builder's yard no. 4, approximately 4,575 d.w. tons, in two sections, the aft section on Mar. 25 and the forward section April 13. The so called cutting was accomplished as follows: A theoretical line of cutting was established in a convenient place; in this instance between frame 108 and 109. All plates and angles which came in the way of this line were left unriveted. All plates and angles adjacent to the plates removed were left unriveted, for a distance sufficient to allow of the removal of these plates, but everything was kept well bolted up ,to keep the hull in true shape, until it was necessary to undo the loose portion, prior to launching. The ship has a wooden bulkhead, fitted on frame 94, acting as a reserve bunker. This was taken advantage of, and used to float the aft part. After completing the boilers and machinery, and all fittings, the ship will betowed in two parts to Montreal to be put together.

The British American Shipbuilding Co. expects to launch the s.s. Canadian Squatter; Marine Department contract 45; builder's yard no. 5; approximately 4,575 d.w. tons, during June.

Collingwood Shipbuilding Co., Collingwood, Ont., delivered the s.s. Canadian Farmer; Marine Department contract 46; builder's yard no. 65; approximately 3,990 d.w. tons; April 28.

Collingwood Shipbuilding Co., Kingston, Ont., laid the keel for steel cargo steamship Canadian Coaster; Marine Department contract 58; builder's yard no. 16; approximately 3,890 d.w. tons; May 6.

Collingwood Shipbuilding Co., Kingston, Ont., delivered the steel cargo steamship Canadian Beaver; Marine Department contract 31; builder's yard no. 15; approximately 3,990 d.w. tons; to the Marine Department; May 11.

Davie Shipbuilding & Repairing Co., Lauzon, Levis, Que., launched the steel cargo steamship, Canadian Hunter; Marine Department contract 18; builder's yard no. 460; approximately 5,100 d.w. tons; for Canadian Government Merchant Marine Ltd.; May 5.

Halifax Shipyards Ltd., Halifax, N.S., advises us May 11 that it expected to launch the steel cargo steamship Canadian Mariner; Marine Department contract 21; builder's yard no. 1; approximately 8,390 d.w. tons, on June 21.

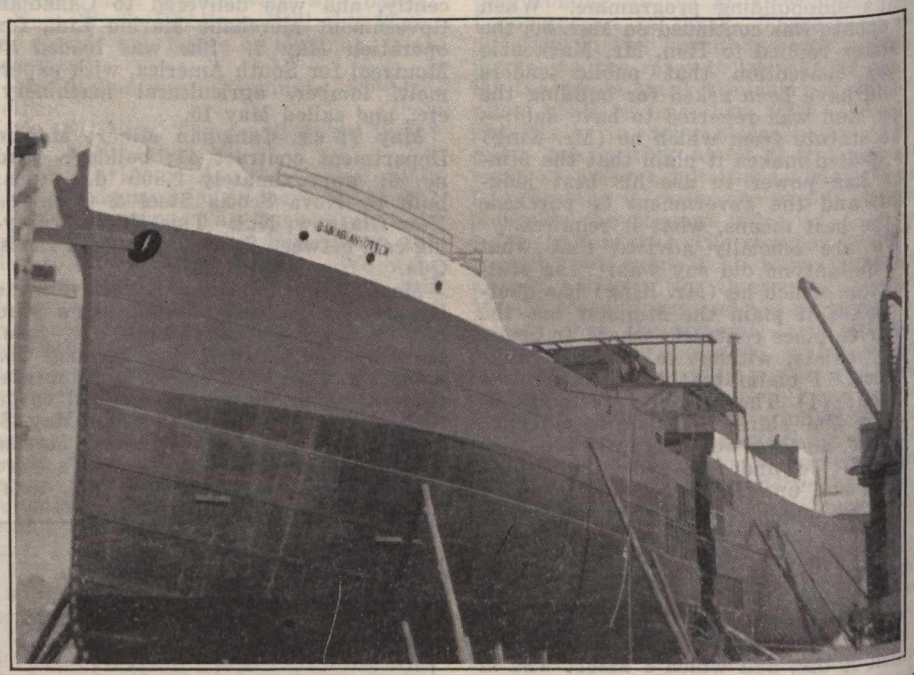
Midland Shipbuilding Co., Midland, Ont., advised us May 10 that it had not been able to obtain steel to lay the keel of the steel cargo steamship Canadian Racer; Marine Department contract 54; builder's yard no. 10; approximately 3,390 d.w. tons; but that it hoped to lay the keel within three weeks thereafter.

Nova Scotia Steel & Coal Co., New Glasgow, N.S., laid the keel of a steel cargo steamship, Marine Department contract 59; builder's yard no. 8; approximately 2,800 tons; May 4.

Nova Scotia Steel & Coal Co. delivered the steel cargo steamship Canadian Miner; Marine Department contract 41; builder's yard no. 6; approximately 2,800 d.w. tons; to the Marine Department, May 7.

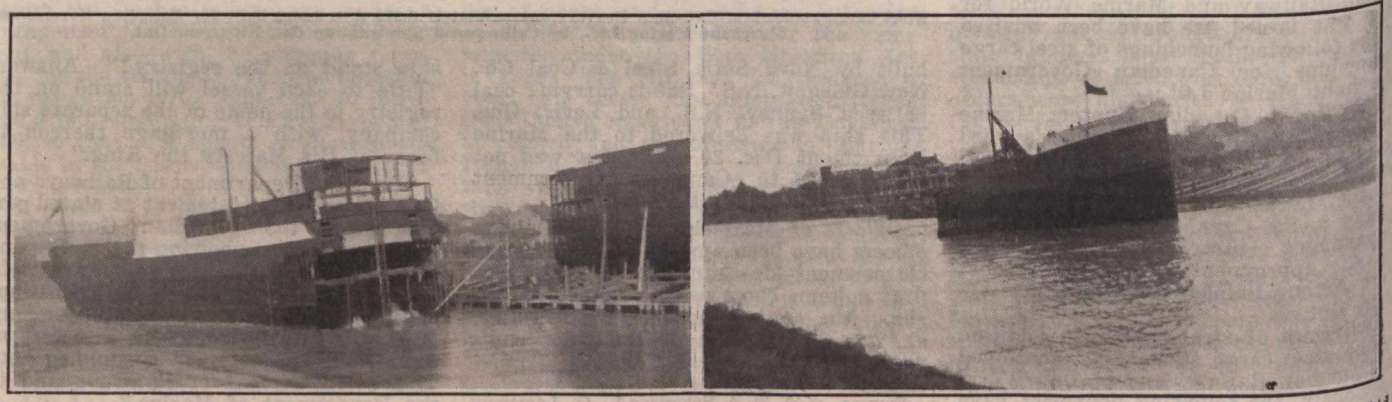
Port Arthur Shipbuilding Co., Port Arthur, Ont., launched the s.s. Canadian Runner; Marine Department contract 32; builder's yard no. 43: approximately 4,575 d.w. tons, May 8, for Canadian Government Merchant Marine Ltd.

Tidewater Shipbuilders Ltd., Three Rivers, Que., expects to launch two steel cargo steamships, each approximately 5,100 d.w. tons, for Canadian Government Merchant Marine Ltd., as follows:—S.s. Canadian Fisher; Marine Department 15; builder's yard no. 7; in June; s.s. Canadian Forrester; Marine Department 16; builder's yard no. 8; in July.



Steel cargo steamship Canadian Otter, approximately 4,575 d.w. tons, for Canadian Government Merchant Marine Ltd., being built in two sections by British American Shipbuilding Co., Welland, Ont., for taking through the Welland and St. Lawrence canals.

Noronic Floating Inn, at the Brush St. Dock, Detroit, Mich., was opened for business May 1, for the accommodation of visitors to Detroit who are unable to secure accommodation in hotels, and the service will be continued until further notice. By arrangement with the Northern Navigation Co., the s.s. Noronic is being used for this purpose, until she takes up her ordinary summer schedule. She has 279 rooms, and the prices are as follows: Rates per night, inside rooms, $2 single, $3 double; outside rooms, $3 single, $4.50 double; rooms with bath $5 single, $8 double; running hot and cold water in every room; table d'hote meals, regular Northern Navigation service, breakfast 7 to 10 a.m. $1, luncheon 12 to 2 p.m. $1.25, dinner 6 to 8.30 p.m. $2. Dancing will be arranged for guests each evening, except Sundays, to 11 p.m., and a concert on Sundays.



Launchings of aft and fore sections of steel cargo steamship Canadian Otter, approximately 4,575 d.w. tons, for Canadian Government Merchant Marine Ltd., by British American Shipbuilding Co., Welland, Ont.

Orders for Steel Cargo Steamships for Canadian Government Merchant Marine Ltd.

The following is a complete list of steel cargo steamships which the Dominion Marine Department has been authorized, by order in council, to place orders for, and which orders are to be carried out. The figures given in the column headed "Long tons d.w" and which are preceded by an asterisk (*) show the total deadweight capacities as determined after the ships have been completed. The other figures in that column, not preceded by an asterisk, show the approximate total deadweights, subject to modification as they may vary above or below the figures given and as may be ascertained after the ships are completed, and of course, the total prices will vary accordingly.

Where the total price does not agree with the finally ascertained deadweight tons multiplied by the price per ton, the extra amount is for changes from specifications, additional equipment, accommodation, etc.

The following contractions are used in the column giving the type of the vessels to be built: s.d., single deck; 2.d., two deck; 3.d., three deck; lake, lake type; p. poop; b., bridge; f'c's'le, forecastle.

Contract	Contract date	Name	Builder	Yard no.	Long tons d.w.	Price per ton d.w.	Total price	Type	Classification	Speed knots	Keel laid	Launched	Delivered.
1	Mar. 4, 1918	Canadian Voyageur	Canadian Vickers Ltd.	66	*4,575	$207.	$ 948,660.75	S.d., p., b. and f'c's'le	Lloyd's	11	June 11, 1918	Nov. 23, 1918	Feb. 22, 1919
2	May 22, 1918	Canadian Pioneer	" "	67	*8,408	180.	1,519,459.99	2.d., p., b and f'c's'le	"	11	July 17, 1918	Dec. 3, 1918	May 9, 1919
3	May 18, 1918	Canadian Warrior	Collingwood Shipbldg. Co., C'wood.	61	*3,595	205.	819,385.58	Lake, s.d., p., b. and f'c's'le	Bri. Corp.	9	Not stated	Dec. 21, 1918	Apr. 26, 1919
4	Mar. 15, 1918	Canadian Volunteer	Wallace Shipyards Ltd.	100	4,485	207.	928,395	S.d., p., b. and f'c's'le	Lloyd's	11	Oct. 1, 1918	Apr. 5, 1919	June 19, 1919
5	Nov. 25, 1918	Canadian Trooper	" " "	106	4,540	217.	985,180	S.d., p., b. and f'c's'le	"	11	Nov. 15, 1918	May 31, 1919	Aug. 7, 1919
6	Nov. 25, 1918	Canadian Aviator	" " "	101	5,100	210.	1,071,000	S.d., p., b. and f'c's'le	"	11	Apr. 5, 1919	Oct. 9, 1919	Nov. 15, 1919
7	Nov. 25, 1918	Canadian Raider	" " "	102	5,100	210.	1,071,000	S.d., p., b. and f'c's'le	"	11	May 31, 1919	Dec. 11, 1919	Jan. 17, 1920
10	July 5, 1918	Canadian Recruit	Collingwood Shipbldg. Co., C'wood.	62	*3,964	205.	813,252.07	Lake, s.d., p., b. and f'c's'le	Bri. Corp.	9	Jan. 3, 1919	May 3, 1919	June 7, 1919
11	Oct. 17, 1918	Canadian Signaller	" "	63	3,990	205.	817,950	Lake, s.d., p., b. and f'c's'le	"	9	Jan. 16, 1919	June 28, 1919	Aug. 30, 1919
12	Oct. 17, 1918	Canadian Gunner	" "	64	3,990	205.	817,950	Lake, s.d., p., b. and f'c's'le	"	9	Feb. 10, 1919	Oct. 4, 1919	Nov. 6, 1919
13	Aug. 9, 1918	Canadian Settler	Tidewater Shipbuilders Ltd.	5	5,100	200.	1,020,000	S.d., p., b. and f'c's'le	Lloyd's	11	Jan. 8, 1919	Sept. 20, 1919	Dec. 2, 1919
14	Aug. 9, 1918	Canadian Rancher	" " "	6	5,100	200.	1,020,000	S.d., p., b. and f'c's'le	"	11	Jan. 10, 1919	Nov. 1, 1919	Dec. 27, 1919
15	Jan. 24, 1919	Canadian Fisher	" " "	7	5,100	200.	1,020,000	S.d., p., b. and f'c's'le	"	11	Sept. 20, 1919	.....	.....
16	Jan. 24, 1919	Canadian Forester	" " "	8	5,100	200.	1,020,000	S.d., p., b. and f'c's'le	"	11	Nov. 1, 1919	.....	.....
17	Sept. 4, 1918	Canadian Trapper	Davie Shipbuilding & Repairing Co.	459	5,100	200.	1,020,000	S.d., p., b. and f'c's'le	"	11	Mar. 11, 1919	Oct. 9, 1919	.....
18	Sept. 4, 1918	Canadian Hunter	" " "	460	5,100	200.	1,020,000	S.d., p., b. and f'c's'le	"	11	Mar. 28, 1919	May 7, 1920	.....
19	Sept. 4, 1918	Canadian Trader	Port Arthur Shipbuilding Co.	39	*3,341	205.	686,762.88	Lake, s.d., p., b. and f'c's'le	"	9	Dec. 9, 1918	May 5, 1919	July 18, 1919
19a	Mar. 1, 1919	Canadian Adventurer	" "	41	*3,408	210.	715,652.49	Lake, s.d., p., b. and f'c's'le	"	9	Mar. 31, 1919	Sept. 8, 1919	Oct. 29, 1919
20	Sept. 4, 1918	Canadian Sailor	" "	40	*3,357	205.	690,409.84	Lake, s.d., p., b. and f'c's'le	"	9	Dec. 10, 1918	May 31, 1919	Aug. 7, 1919
20a	Mar. 1, 1919	Canadian Sower	" "	42	*3,405	210.	715,649.13	Lake, s.d., p., b. and f'c's'le	"	9	Mar. 31, 1919	Oct. 9, 1919	Nov. 18, 1919
21	Sept. 13, 1918	Canadian Mariner	Halifax Shipyards Ltd.	1	8,390	195.	1,636,050	2.d., p., b and f'c's'le	"	10	Feb. 24, 1919	.....	.....
22	Sept. 13, 1918	Canadian Explorer	" " "	2	8,390	195.	1,636,050	2.d., p., b and f'c's'le	"	10	Mar. 15, 1919	.....	.....
23	Oct. 11, 1918	Canadian Navigator	Canadian Vickers Ltd.	73	4,575	215.	983,625	S.d., p., b. and f'c's'le	"	11	Jan. 22 1919	Oct. 18, 1919	Nov. 22, 1919
24	Oct. 11, 1918	Canadian Ranger	" " "	68	*8,382	188.	1,575,816.00	2.d., p., b and f'c's'le	"	11	Aug. 26, 1918	Apr. 19, 1919	May 23, 1919
25	Oct. 11, 1918	Canadian Seigneur	" " "	69	*8,391	188.	1,587,643.15	2.d., p., b and f'c's'le	"	11	Nov. 30, 1918	May 7, 1919	Aug. 14, 1919
26	Oct. 11, 1918	Canadian Miller	" " "	70	8,390	188.	1,577,320	2.d., p., b and f'c's'le	"	11	Dec. 2, 1918	Aug. 16, 1919	Sept. 24, 1919
27	Oct. 11, 1918	Canadian Spinner	" " "	71	*8,393	188.	1,589,700.00	2.d., p., b and f'c's'le	"	11	Apr. 23, 1919	Nov. 8, 1919	Dec. 6, 1919
28	Oct. 11, 1918	Canadian Planter	" " "	72	8,390	188.	1,577,320	2.d., p., b and f'c's'le	"	11	May 10, 1919	Nov. 22, 1919	Dec. 27, 1919
29	Jan. 24, 1919	Canadian Winner	Harbor Marine Co. Ltd.	1	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	July 14, 1919	.....	.....
30	Jan. 24, 1919	Canadian Traveller	" "	2	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	Aug. 9, 1919	.....	.....
31	Dec. 11, 1918	Canadian Beaver	Collingwood Shipbldg. Co., Kingston	15	3,990	205.	817,950	Lake, s.d., p., b. and f'c's'le	Bri. Corp.	9	Apr. 7, 1919	Dec. 10, 1919	May 11, 1920
32	Mar. 1, 1919	Canadian Runner	Port Arthur Shipbuilding Co.	43	4,575	215.	983,625	S.d., p., b. and f'c's'le	Lloyd's	10½	Aug. 29, 1919	May 8, 1920	.....
33	Mar. 1, 1919	Canadian Carrier	" "	44	4,575	215.	983,625	S.d., p., b. and f'c's'le	"	10½	Aug. 29, 1919	.....	.....
34	Nov. 22, 1918	Canadian Importer	J. Coughlan & Sons	11	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	Apr. 26, 1919	Dec. 6, 1919	Feb. 5, 1920
35	Nov. 22, 1918	Canadian Exporter	"	12	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	May 3, 1919	Dec. 27, 1919	Mar. 6, 1920
36	Nov. 22, 1918	Canadian Inventor	"	13	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	July 24, 1919	Jan. 24, 1920	.....
37	Nov. 22, 1918	Canadian Prospector	"	14	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	Sept. 26, 1919	Feb. 24, 1920	.....
38	Dec. 10, 1918	Canadian Cruiser	Halifax Shipyards Ltd.	3	10,500	197.50	2,073,750	3.d, p., and f'c's'le	"	12	Oct. 2, 1919	.....	.....
39	Dec. 10, 1918	Canadian Constructor	" " "	4	10,500	197.50	2,073,750	3.d, p., and f'c's'le	"	12	Oct. 6, 1919	.....	.....
40	Mar. 31, 1919	Canadian Sealer	Nova Scotia Steel & Coal Co.	5	2,800	210.	588,000	S.d., p., b. and f'c's'le	"	8½	Mar. 27, 1919	Oct. 8, 1919	Dec. 20, 1920
41	Mar. 31, 1919	Canadian Miner	" "	6	2,800	210.	588,000	S.d., p., b. and f'c's'le	"	8½	Mar. 31, 1919	Apr. 3, 1920	May 7, 1920
42	Feb. 21, 1919	Canadian Reaper	Prince Rupert Dry Dock & Eng. Co.	1	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	Sept. 27, 1919	.....	.....
43	Feb. 21, 1919	Canadian Thrasher	" " "	2	8,390	198.	1,661,220	2.d., p., b and f'c's'le	"	11	Oct. 20, 1919	.....	.....
44	Jan. 23, 1919	Canadian Otter	British American Shipbuilding Co.	4	4,575	215.	983,625	S.d., p., b. and f'c's'le	Bri. Corp.	10	Mar. 29, 1919	Apr. 13, 1920	.....
45	Jan. 23, 1919	Canadian Squatter	" " "	5	4,575	215.	983,625	S.d., p., b. and f'c's'le	"	10	July 14, 1919	.....	.....
46	Sept. 11, 1919	Canadian Farmer	Collingwood Shipbldg. Co., C'wood.	65	3,990	180.	718,200	Lake, s.d., p. b., and f'c's'le	Lloyd's	11	Sept. 3, 1919	Dec. 27, 1919	Apr. 28, 1920
47	Sept. 11, 1919	Canadian Observer	" "	66	3,990	180.	718,200	Lake, s.d., p., b. and f'c's'le	"	11	Sept. 12, 1919	.....	.....
48	Sept. 2, 1919	Canadian Pathfinder	Dominion Shipbuilding Co.	10	3,500	180.	630,000	Lake, s.d., p., b. and f'c's'le	"	11	Nov. 8, 1919	.....	.....
49	Sept. 2, 1919	Canadian Engineer	" "	11	3,500	180.	630,000	Lake, s.d., p., b. and f'c's'le	"	11	Nov. 8, 1919	.....	.....
50	Sept. 18, 1919	Canadian Victor	Canadian Vickers Ltd.	77	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	Lloyd's	11	Dec. 10, 1919	.....	.....
51	Sept. 18, 1919	Canadian Conqueror	" " "	78	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	Jan. 17, 1920	.....	.....
52	Sept. 18, 1919	Canadian Commander	" " "	79	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	.....	.....	.....
53	Sept. 18, 1919	Canadian Leader	" " "	80	8,390	170.	1,426,300	2.d. p., b. and f'c's'le	"	11	.....	.....	.....
54	Feb. 26, 1920	Canadian Racer	Midland Shipbuilding Co.	10	3,990	180.	718,200	Lake, s.d., p., b. and f'c's'le	Lloyd's	11	.....	.....	.....
55	Mar. 18, 1920	Canadian Highlander	Wallace Shipyards Ltd.	103	8,390	167.50	1,405,325	2.d. p., b. and f'c's'le	"	11	.....	.....	.....
56	Mar. 18, 1920	Canadian Skirmisher	" " "	104	8,390	167.50	1,405,325	2.d. p., b. and f'c's'le	"	11	.....	.....	.....
57	Mar. 13, 1920	Canadian Rover	Collingwood Shipbldg. Co., C'wood.	67	3,890	182.50	709,925	Lake, s.d., p., b. and f'c's'le	Lloyd's	11	.....	.....	.....
58	Mar. 13, 1920	Canadian Coaster	Collingwood Shipbldg Co., Kingston	16	3,890	185.50	709,925	Lake, s.d., p., b. and f'c's'le	"	11	May 6, 1920	.....	.....
59	.....	.....	Nova Scotia Steel & Coal Co.	8	2,800	190.	532,000	2.d. p., b. and f'c's'le	"	8½	May 4, 1920	.....	.....
60	Feb. 2, 1920	Canadian Challenger	Davie Shipbuilding & Repairing Co.	476	8,390	167.50	1,405,325	2.d. p., b. and f'c's'le	"	11	.....	.....	.....
61	Feb. 26, 1920	.....	Port Arthur Shipbuilding Co.	45	3,890	182.50	709,925	Lake, s.d., p., b, and f'c's'le	"	11	Mar. 30, 1920	.....	.....
62	April 7, 1920	Canadian Transporter	J. Coughlan & Sons	20	8,390	167.50	1,405,325	2.d p., b. and f'c's'le	"	11	.....	.....	.....
63	April 7, 1920	Canadian Freighter	"	21	8,390	167.50	1,405,325	2.d p., b. and f'c's'le	"	11	.....	.....	.....
					383,519		$73,058,101.78						

Legislation Respecting Sick and Distressed Mariners.

The following resolution was adopted by the House of Commons May 11, on motion of Hon. N. W. Rowell:—

That it is expedient to bring in a measure to amend the Canada Shipping Act, Revised Statutes, 1906, chap. 113, and to provide:—

1. That Part V of the said Act, relating to Sick and Distressed Mariners, be repealed, and in lieu thereof it be enacted,—

(a) That the Minister, with the approval of the Governor in council, may rent and equip and maintain premises for hospitals for the care and treatment of sick mariners, and may, with the consent of the person having the control and management of any hospital, designate such hospital to be, during his pleasure, a hospital for the care and treatment of sick mariners, and contract with such persons for the care and treatment of sick mariners, and may discontinue the use of any such hospital for the purposes aforesaid; and that the Minister may make regulations for the government of any such hospital, and prescribe the duties and powers of the medical and other officers and employes of such hospitals, and of the port physicians and of all other officers required to perform any services in carrying out the provisions of this legislation or of any regulation made hereunder; and all hospitals devoted exclusively to the treatment of sick mariners shall be under the exclusive control and management of the Minister; and that any shipwrecked, destitute or otherwise distressed seamen may, by authority from the Minister, be temporarily boarded and lodged and taken care of at any marine or seamen's hospital devoted exclusively to the reception, care and treatment of sick mariners;

(b) That there shall be levied and collected on every ship arriving in any port in Quebec, Nova Scotia, New Brunswick, Prince Edward Island, or British Columbia, hereinafter called "the provinces", a duty of 2c. for every ton which such ship measures, registered tonnage, but in no case shall the duty payable by any ship be less than $2 in any year; that such duty shall be payable on each ship three times during each calendar year by the master or person in command of such ship, or by some person on his behalf to the collector or other chief customs officer at the port at which such ship is entered, at the time of making such entry, and such entry shall contain on its face the tonnage of such ship, and no entry shall be made and no clearance shall be granted unless such duty is paid;

(c) That no ship otherwise liable to pay the duty shall be exempt from the payment of the said duty by reason of her voyage being one not requiring entry or clearance at the Custom house. If the ship does not require entry, the duty shall be paid immediately on her arrival;

(d) That no ship engaged in the coasting trade of Canada and arriving at any port in any of the said provinces from any other port in the same province, or arriving at any port in the province of Quebec from any port in the province of Ontario, shall be subject to the payment of the duty: provided that no ship arriving at any port in Canada from any place out of Canada, and afterwards continuing her voyage to another port in Canada, shall be exempt from the payment of the duty at the last mentioned port, unless she has paid it at the first mentioned or some other port on the same voyage;

(e) That as regards fishing vessels, the duty shall not be payable on ships employed exclusively in fishing or arriving at a port in the provinces when on a fishing voyage, but the master or person in command of a ship registered in Canada used exclusively in fishing or to be employed on a fishing voyage, may, if he so desires, pay the said duty of 2c. for each registered ton before the said ship makes its first fishing voyage in any year, at the first port at which the ship receives any part of her outfit for the said voyage, and thereafter before each subsequent voyage during the year, but not exceeding three payments in all in any calendar year;

(f) That every collector or other chief officer of the Customs shall account for the sums received by him under these provisions in such manner as the Minister may from time to time direct;

(g) That sick mariners on ships paying duty, shall be received and treated in any hospital for sick mariners as heretofore, and receive the care of a collector or other chief officer of Customs where there is no marine hospital; but no sick mariner taken ill or injured outside of Canada, and arriving in any of the said provinces otherwise than in a ship to which he belongs, shall be entitled to the benefits conferred by these provisions, nor for a period longer than one year without written authority from the Minister, nor shall he be entitled to treatment or care thereunder when suffering from permanent insanity, and no sick mariners belonging to ships exempted from or not paying the duty levied under these provisions shall be entitled to the rights or benefits of sick mariners hereunder;

(h) That all expenditures made under these provisions shall be paid out of such moneys as Parliament may appropriate for the purpose; and be accounted for, with attested vouchers, as the Minister may direct; and an annual report thereof, with a statement of receipts and expenditures, shall be laid before Parliament.

2. That section 207 of the said Act be repealed, and in lieu thereof it be enacted that the Minister may whenever he deems it necessary pay out of any moneys applicable to the relief of distressed seamen and appropriated by the Parliament of Canada for that purpose, such sums as he deems requisite for the temporary relief in such manner as he deems advisable, of shipwrecked, destitute or otherwise distressed seamen not entitled to relief under any of the provisions of the Merchant Shipping Act, 1894; and may also on the production of the bills of the disbursements with the proper vouchers and such other evidence as the Minister requires, pay out of such moneys any reasonable expenses incurred by the Board of Trade of the United Kingdom or by any officers of His Majesty in any British possession other than Canada or in any foreign country, on account of subsistence or transport back to Canada of any seamen or apprentices who have been domiciled in Canada for twelve months and who have been found in distress either on account of shipwreck or otherwise in any place out of Canada; and persons serving in ships registered in Canada shall for this purpose be deemed to be domiciled in Canada while so serving.

A bill based on the resolution was introduced immediately and read a first time.

Seamen's Convention at Genoa.

Under the provisions of the Peace Treaty, the League of Nations' International Labor Office has arranged for a conference to be held at Genoa, Italy, opening on June 15, to deal with labor questions affecting seamen. The convention creating a permanent organization for the promotion of the international regulation of labor conditions, provides that meetings of the general conferences of representatives of the members shall be held at least once a year, and that the representatives of each member shall consist of two government delegates, and two others representing respectively the employes and the working people of each of the members.

The following delegates have been appointed for Canada:—Sir George H. Perley, High Commissioner for Canada in England; and G. J. Desbarats, Deputy Minister of Naval Service, Ottawa, representing the government; Thos. Robb, Manager, Shipping Federation of Canada, Montreal, representing Canadian employers; and J. C. Gauthier, of the National Association of Masters, Mates and Pilots and of the International Seamen's Union of America, Montreal, representing Canadian workpeople.

The Labor Department at Ottawa, at the request of the International Labor office, circulated a questionnaire among Canadian vessel owners, submitting a great number of questions to assist the Ottawa Government in considering its attitude. It included the seamen's conference agenda as follows:—

Application to seamen of the convention drafted at Washington in Nov., 1919, limiting the hours of work in all industrial undertakings, including tarnsport by inland waterways, to 8 hours in the day and 48 in the week.

Consequential effects as regards manning, and in the regulations relating to accommodation and health on board ship.

Supervision of articles of agreement.

Provision of facilities for finding employment for seamen.

Application to seamen, of the convention and recommendations adopted at Washington in Nov., 1919, in regard to unemployment and unemployment insurance.

Application to seamen of the convention adopted at Washington, prohibiting the employment of children under 14 years of age.

Consideration of the possibility of drawing up an international seamen's code.

Navigation Regulations for Lower Detroit River.—The regulations for the navigation of the lower Detroit River, while the Livingstone channel is being widened, and which were published in our May issue, as effective on the opening of navigation, were suspended subsequently, and the previous regulations put in force, temporarily. The new regulations as published in our last issue have been revived, and made effective as from May 15, with the following change: "Upbound vessels leaving Livingstone channel must proceed above gas buoys 83D and 84D, marking the north end of Ballards Reef, before crossing the path of downbound vessels." The former regulation covering this last point provided that upbound vessels leaving Livingstone channel must cross the path of downbound vessels in the vicinity of Ballards reef.

Steamship Communication with Magdalen Islands.

Senator J. McLean, of Souris, P.E.I., moved in the Senate April 30, that a select committee of the Senate be appointed to enquire into the management of the steamship Canadian Sealer, now lying at Souris, P.E.I., laden with fishing and other supplies for the Magdalen Islands, and the reason why such steamship was not dispatched at the opening of navigation to the Magdalen Islands, and that the committee be empowered to send for persons, papers and records and employ a stenographer and such clerical aid as may be necessary, the committee to be composed of Senators Crosby, Murphy, Tanner, Thompson and the mover.

In supporting the motion he said:—In asking for this committee I may say that the people of the Magdalen Islands have been very badly used. The steamship they have needed so sorely all winter was not dispatched this spring as early as navigation would allow her to go. It seems ridiculous that one of the government steamships should leave England and get up to Montreal a week or so before this steamship was fitted out for that place, while the people were waiting ever since last autumn for goods that they should have had before the session opened. I had a telegram from my son on April 28 stating that the steamship was expected the next day, but I learned that the captain had arrived in Charlottetown, looking for a crew, and up to the present I have had no report that the crew has arrived or that the steamship has gone forward. I notified the Marine Department on Mar. 29 that the Gulf was then clear as far as the Magdalen Islands, and was told the steamship would be fitted out at once. When I got the telegram on April 21 asking that she be dispatched through to the Magdalen Islands I called up the Marine Department and was referred to the Railway Department, which in turn sent me to the Trade and Commerce Department, and the latter had no information, and referred me back to the Marine Department. I understand the trouble to be that the steamship they had on hand, the Lady Evelyn, was not able to make the two trips a week. On this matter we will have more information when Senator Tanner of Pictou gets his information as to the nature of the contract. For the last 30 or 40 years the government has been paying a large subsidy for carrying mails and passengers and freight from Pictou and Souris to the Magdalen Islands, and the only service that was satisfactory was that given by the Lady Sybil, which was built by the Magdalen Islands Steamship Co., especially for that route. She is capable of making 12 or 13 knots, and can make two round trips a week; but the Lady Evelyn, a smaller steamship, could not make a trip twice a week, except in June and July, when there was not a large amount of freight offering; in the spring and autumn, when there was a large amount of freight, she was not able to keep the freight clear.

My object in having this committee appointed is to find who are responsible for the neglect, delay, and hardship imposed upon the people of the Magdalen Islands, and put it before the proper department. As the government is building steamships now, I believe the time has arrived when it should build one of the capacity of the Lady Sybil, which would take the round trip twice a week and clean up the freight, because it must have been a great expense, either to the contractor or to the government, last autumn, to send the car ferry down to Pictou and take out this new steamship of 2,500 tons that was lying there, send her over to Souris, have her unsuccessfully attempt to go down; then replace her with the Montcalm; take part of the goods out of the Canadian Sealer; and then spend six weeks getting down to the Magdalen Islands; whereas if her contractor had a steamship suitable for the purpose there would have been no trouble whatever; the freight would have all been cleaned up, and the people would have had their freight last autumn. I believe if the Government built a steamship a little larger than the Lady Sybil, with proper speed, and put her on that route, it would save the ship subsidies that are now being paid to the contractors, and take the mails, and passengers and freight, down there. There would be a further saving to the government if that steamship was put in connection with the railway that carries the goods that are taken down to the Magdalen Islands. Those people do not raise any goods for export, and all the freight that goes down there in the shape of supplies, flour and goods of that kind, would come over the Canadian railways. If the steamship was taken over, the railways would have control of that, which I think would be of great service. For these reasons I ask that this committee be appointed with power to investigate matters.

The resolution was adopted.

Vancouver Harbor Officials' Salaries. An Ottawa press dispatch of May 21 says an order in council has been passed, fixing annual salaries to be paid the Vancouver Harbor Commissioners officials, as follows:—Secretary, $4,500; Chief Engineer, $4,500; Assistant Chief Engineer, $3,000; Harbormaster, $3,600; Port Warden, $3,600; Chief Accountant, $3,000; Assistant Accountant, $3,400; Port Superintendent, $2,400.

The s.s. M. Moran, owned by the British War Office, has been transferred from Canadian to the British register. She was built at Camden, N.J., in 1912, and is screw driven by engine of 54 h.p., her dimensions being,—length 109 ft., breadth 25.7 ft., depth 14.5 ft.; tonnage 315 gross, 111 net.

Pictou, N.S. Harbor Control Transfer.

The Minister of Marine in introducing a bill in the House of Commons, May 10, to repeal the acts relating to Pictou harbor, to provide for the transfer to the government of the property, rights and assets held by the harbor commissioners, and to provide that the government assume and discharge all the commissioners' obligations and liabilities, said:—"The reason for the transfer is that the revenue of Pictou harbor is less than the expenditures in connection with it. The revenue for the seven years from 1913 to 1919, inclusive, was $3,388, and the expenditure $3,840. While the harbor is under a commission, no moneys can be spent to repair the wharves there unless the revenue permits of that being done; and according to the figures I have given the expenditure during the period referred to has been greater than the revenue. The commission is unable to make the necessary repairs to the wharf as matters stand, and therefore it is proposed that the harbor shall be transferred from the Marine Department to the Public Works Department."

Trawler Sales.—The Anderson Co. of Canada has sold the Admiralty trawlers 42 and 43, to the Pecheries at Armements de la Rochelle Ocean of Havre, France, which also bought no. 41, as mentioned in a previous issue. Mexican interests have been negotiating for the purchase of three of these ships, but on account of the political troubles in Mexico, the deal is suspended temporarily. Other negotiations are reported to be in progress, on behalf of the British Government, and it is said that an option has been secured on 40. It is also stated that some sales are expected to French parties in the near future.

Sorel Shipyard Superintendency.—Referring to the Civil Service Commission's notice that applications would be received for appointment to this position, as per particulars published in Canadian Railway and Marine World, we were advised by the commission, on May 11, that the Marine Department had requested that no appointment be made to the position, and that therefore the question of an appointment would be held in abeyance for some time. We are advised by the Marine Department that Louis Lacouture is acting officer in charge.

Sault Ste. Marie Canals Traffic.

The following commerce passed through the Sault Ste. Marie Canals during April, 1920:

Articles		Canadian Canal	U.S. Canal	Total
Lumber	Eastbound	M. ft. B.M.	2,050	2,050
Flour	"	Barrels	.....	.....
Wheat	"	Bushels 210,000	4,064,611	4,274,611
Grain, other than wheat	"	Bushels 515,000	5,493,000	6,008,000
Copper	"	Short tons	.....	.....
Iron Ore	"	Short tons	162,630	162,630
Pig Iron	"	Short tons	.....	.....
Stone	"	Short tons	.....	.....
General Merchandise	"	Short tons 540	5	545
Passengers	"	Number	.....	.....
Coal, soft	Westbound	Short tons 8,000	42,831	50,831
Coal, hard	"	Short tons	10,000	10,000
Iron Ore	"	Short tons	.....	.....
Manufactured Iron and Steel	"	Short tons	.....	.....
Salt	"	Short tons	.....	.....
Oil	"	Short tons	.....	.....
Stone	"	Short tons	6,247	6,247
General Merchandise	"	Short tons 2,905	12,500	15,405
Passengers	"	Number	.....	.....
Summary				
Vessel Passages		Number 86	146	232
Registered Tonnage		Net 90,741	522,584	613,325
Freight—Eastbound		Short tons 18,765	435,961	454,726
Westbound		Short tons 10,905	71,578	82,483
Total Freight		Short tons 29,670	507,539	537,209

Canadian canal opened Apr. 23, U.S. canal opened Apr. 19.

The Pilotage Situation in British Columbia.

Canadian Railway and Marine World for May mentioned a press report stating that a message had been received in Vancouver early in April from the Deputy Minister of Marine, to the effect that unless B.C. pilots accepted the Government's terms regarding wages and working conditions, open pilotage would become effective on the B.C. coast on May 6. Just after our May issue had gone to press, the Marine Department supplied us with the following memorandum in regard to the matter: —

"From and after May 6 next, the compulsory payment of pilotage dues, in what was heretofore the British Columbia Pilotage District, will be discontinued. This district comprised the whole of B.C., with the exception of the Fraser River, and hereafter all vessel owners and agents will require to make their own arrangements for such pilotage services as they may require in these waters. The adoption of this policy is the outcome of attempts made by the Marine Department to make effective the main recommendations submitted by the royal commission that enquired into pilotage matters in B.C. during 1918. For a great many years, representations were forthcoming from B.C. interests that the pilotage service as then conducted was not satisfactory nor calculated to advance the trade of Canadian Pacific ports. These representations, so persisted in, resulted in the appointment of the royal commission alluded to. The chief of the recommendations submitted by the commission was that the Minister of Marine should supersede the various local pilotage authorities, and become the pilotage authority in B.C. waters, with all pilots operating directly under him, at salaries to be determined by him. The recommendation of the royal commission was that this salary should be $250 a month. By order in council of Sept. 10, 1919, it was resolved to put this recommendation in effect, and accordingly the several local pilotage authorities were abolished, and one pilotage district, embracing all the coast waters of B.C., under the authority of the Minister of Marine was constituted to be effective as from Jan. 1, 1920.

"A General Superintendent of Pilots was appointed by the Minister, with extensive and intimate knowledge of B.C. ports and their requirements. Under his supervision bylaws for the administration of pilotage in the new district were prepared, and approved by the government. These bylaws provided inter alia that pilots might receive a salary up to the maximum of $325 a month, provided the business to the several ports would yield enough revenue to enable such payments to be made, in addition to defraying other necessary and legitimate expenses. Based on the annual reports submitted to the department by local pilotage authorities, the remuneration recommended by the General Superintendent and approved by the government was in excess of any remuneration previously received by pilots. From the outset of the negotiations, the pilots insisted upon a higher rate of pay which they plainly intimated should not be under $350 a month, in addition to expenses incurred in carrying on their work. The department declined to accept a proposal of this kind and after some further negotiations on the spot, between the pilots and the Superintendent, it was agreed that the department's proposals should have a three months trial, each side to have the privilege of terminating the agreement at the expiration of this period, upon giving one month notice. During the three months after January, it was found that the revenue was sufficient to pay the pilots a salary of $325 a month, and in addition $4.50 a dey for living allowance while on duty, together with all costs for transportation. The department also agreed to acquire the launches owned by the pilots, at a fair valuation, and to provide employment on shore for two pilots who were over 70 years of age, at a salary of $100 a month, notwithstanding a recommendation to the contrary by the royal commission.

"Towards the end of the three months period, the pilots renewed their demand for a salary of $350 a month, together with excessive requests for expenses and also a request to provide a salary of $150 a month for the two retired pilots alluded to above. For obvious reasons the department was not disposed to accede to the pilots' requests, with the result that, on Mar. 19, the latter telegraphed to say that at a general meeting it was resolved they would not accept the department's proposals or submit to the pilotage bylaws as approved. This telegram was interpreted by the department as a notice to terminate the agreement then in force, and the pilots were so advised. The acting Superintendent of Pilots at Victoria was further instructed by telegram, on April 3, to advise the pilots that their attitude, if persisted in, would leave no alternative to the department but a termination of the agreement. The department emphasized that the period of uncertainty had already continued too long and unless the pilots signified their intention of accepting its proposals, notice of termination of agreement should date from the day on which they would be so advised. The acting superintendent was also informed that if the pilots declined to come under the pilotage authority, shipping interests would be notified that at the expiration of one month the compulsory payment of pilotage would cease, thus leaving both parties free to make their own arrangements respecting pilotage. It was felt that this position would prove more acceptable to the pilots, as they might have some reasons to assume that they could make more satisfactory arrangements with the shipping interests.

"The Minister of Marine has, throughout all the negotiations, endeavored to give most reasonable consideration to the representations submitted by the pilots directly and by the Canadian Merchant Service Guild on their behalf. Inasmuch, however, as B.C. ports, more especially Vancouver, Victoria and Prince Rupert, are great national ports, and destined early to become even greater, it is felt that the public interests will benefit by the adoption of a policy which is more in harmony witih that which obtains at competing United States ports on the Pacific, while not jeopardizing any local interest or the individual interests of the pilots."

As stated in Canadian Railway and Marine World for May, Commander B. L. Johnston, D.S.O., who was appointed Superintendent of the British Columbia Pilotage District, at Victoria, from Jan. 1, resigned in April, and Chas. Eddie, Supervising Examiner of Masters and Mates, Western Division, Vancouver, was appointed to act in his place. The latter's duty as acting Superintendent ceased on May 5, when the B.C. Pilotage District and the compulsory payment of pilotage dues therein came to an end.

The order for the abolition of compulsory pilotage in B.C. waters became effective May 6, and the B.C. Pilotage Association, embracing all pilots serving formerly under the pilotage board notified all shipping companies that the services of its members would continue to be available for the navigation of ships between the William Head quarantine station and Victoria and Vancouver, as well as to and from Island and northern B.C. ports. The association has prepared a scale of rate, which is said to be very little different from the government scale, and this has been submitted to the shipping companies. The association's headquarters are at Vancouver, with a sub office at Victoria. The old pilotage office, at Dallas Road, Victoria, is being maintained by the association, which operates a launch out of William Head for the use of pilots boarding vessels.

Quebec Steamship Company's Sale.

The Quebec Steamship Co., which was controlled and operated by Canada Steamship Lines, Ltd., has been sold to Furness, Withy & Co., which is closely allied with Canada Steamship Lines Ltd. The Quebec Steamship Co. came under the control of Canada Steamship Lines, Ltd., on the formation of the latter company in 1913, by the acquirement of at least 80% of its shares. At that time it operated a steamship service from Quebec to ports on the Lower St. Lawrence and to New York, and from New York to West Indies ports, but of late, the service has been confined to the New York-West Indies route.

The company owned the steamships Guiana, Korona and Parima, which are included in the transfer. The s.s. Guiana was built at Sunderland, Eng., in 1907, and is screw driven by engine of 445 h.p., and has the following dimensions,—length 345 ft., breadth 44.2 ft., depth of hold 24.9 ft.; tonnage, 3,657 gross, 2,294 net. The s.s. Korona, formerly Monmouthshire, was built at Govan, Scotland, in 1886, and is screw driven, by engine of 600 h.p., her dimensions being, length 344 ft., breadth 44.2 ft., depth of hold 26.5 ft.; tonnage, 2,874 gross, 1,871 net. The s.s. Parima, formerly Bungaree, was built at Newcastle upon Tyne, Eng., in 1889, and is screw driven by engine of 450 h.p., and has the following dimensions,—length 335 ft., breadth 42.1 ft., depth of hold 24 ft.; tonnage, 2,990 gross, 1,875 net.

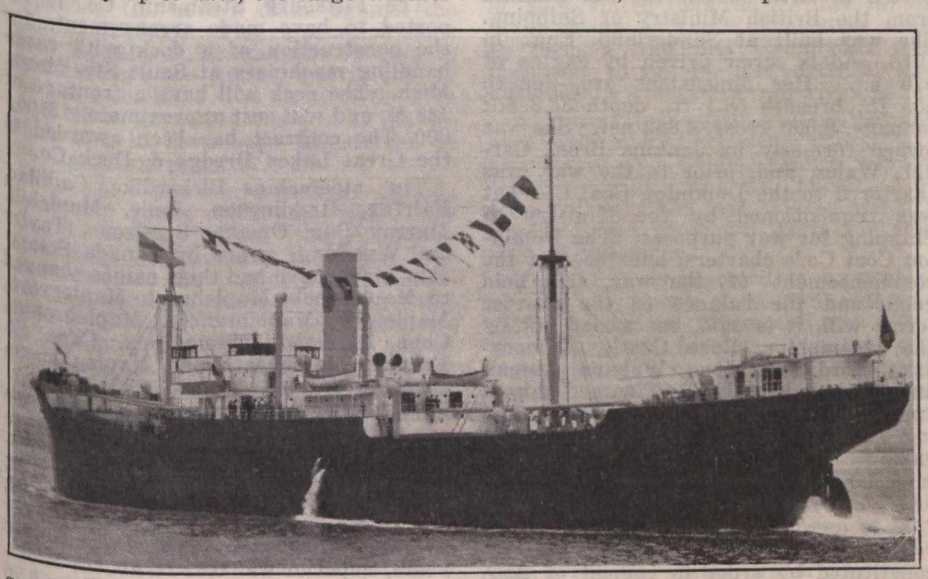
Hydrographic Charts.—The Naval Service Department's Hydrographic Survey has published the following charts, no. 405 Hudson Bay and Hudson Strait, corrected to Oct., 1919; no. 211 St. Lawrence River from Father Point to Pointe aux Orignaux; and no. 209 Saguenay River, St. Fulgence to Shipshaw, corrected to Apr., 1920. Copies may be obtained from the department at 15c each.

Victoria, B.C., Harbor Improvements. The further supplementary estimates for the year ended Mar. 31, 1920, submitted to the House of Commons recently, contained an item: "Victoria harbor improvements. Further amount required, $24,600."

General Shipbuilding Matters Throughout Canada.

B.C. Marine Ltd., Vancouver, is reported to have been awarded a contract by the Hudson's Bay Co. for an auxiliary powered schooner for carrying supplies to its trading posts in the Arctic circle. The ship is, it is said, to be strongly built, to withstand the severe northern weather and ice, and delivery is to be made about October.

Canadian Vickers, Ltd., Montreal. — The s.s. Tatjana, the launching of which at this yard was mentioned in our last issue, is the third steamship built by this company for Norwegian interests, and is owned by Winge & Co., Christiania, Norway. She was built under the supervision of Norwegian Veritas, and was expected to be fully completed and ready for her cargo by the end of May. She is fitted with triple expansion engines, and 3 Scotch boilers, adapted for either coal or oil fuel, and the boilers are fitted with Howden's forced draft system. The double bottom tanks, and a deep tank amidships, will carry about 1,500 tons of fuel oil. The cargo handling equipment is thoroughly up to date, the cargo winches and windlass being of Clarke-Chapman design, the steeering gear of Bow-McLachlan (Mcintosh patent) direct acting type, all manufactured by Canadian Vickers, Ltd. The steering from the navigating bridge is by means of a MacTaggart & Scott telemotor, and it is also controlled mechanically from the poop deck, where there is also a hand steering arrangement, and a complete equipment of mechanical engine room and steering telegraphs. Her dimensions are,—length over all 413 ft., beam 52 ft., depth 31 ft. 0⅞ in., and her draft when loaded with 8,300 tons cargo will be 25 1/3 ft. A sister steamship was launched May for A. Monsen, Toensberg, Norway, and this will be followed later in the year by two similar steamships, but of 6,400 tons, for the Norwegian-America Line.



Steel cargo steamship Braheholm, approximately 8,800 d.w. tons, built for Swedish-American-Mexican Line, Gothenburg, Sweden, by J. Coughlan & Sons, Ltd., Vancouver, B.C.

J. Coughlan & Sons, Ltd., Vancouver, B.C.—The s.s. Braheholm, the launching of which for the Swedish American Mexican Line, Gothenberg, Sweden, was mentioned in our last issue, underwent her trial trip Apr. 22, and maintained a mean speed of 12.6 knots an hour, six times over the measured mile, her highest run being 13.5 knots an hour. She was delivered to J. A. Sturrock, the owners' representative, Apr. 23, and sailed from Vancouver, Apr. 24, for Tacoma, Wash., to load grain for Alexandria, Egypt.

The company has under construction for subsidiary companies, 2 steel cargo steamships of approximately 8,800 d. w. tons each, similar to the s.s. Braheholm. The keel of the first was laid March 4, and on her launch she will be named Margaret Coughlan.

Harbour Marine Co., Victoria, B.C.—At a meeting of the company's employes at the end of April, a resolution was passed that the Harbour Marine Veterans Association make a strong appeal to the Dominion Government for further contracts for the company, the granting of which would relieve the unemployment situation among returned soldiers. It was stated that the work carried on at the yard had very materially assisted the work of re-establishment, as many of the men originally taken on as unskilled labor, after demobilization, have developed into skilled workmen. As the work on the two steamships now under construction, Marine Department's contracts 29 and 30, Canadian Winner and Canadian Traveller respectively, each approximately 8,390 d.w. tons, is proceeding, men are being laid off, thus increasing the labor difficulties.

The C.P.R. is reported to have ordered a steel car ferry from this company for service between the mainland and Vancouver Island. It is stated that the price is approximately $200,000 and that it is to be delivered during October. It will have capacity for 18 cars and will be of the following dimensions,—length 270 ft., breadth 48 ft., depth 12 ft.

Leclaire Shipbuilding Co., Sorel, Que. P. L. Turgeon, 55 St. Francois Xavier St., Montreal, curator in the insolvency of this company, offered for sale by public auction, May 10, the company's movable assets, including the following,—bills receivable $5,000, a steam barge with scow named Richelieu, a compound marine engine, a tug hull, 2 motor cars, certain lumber rights, shares and sundries and the balance of purchase price, $5,500, due by virtue of a deed of sale.

Pacific Construction Co., Coquitlam, B.C., launched the motorship Kiltuish for the Western Packers Association during April. This is the second ship of this type to be launched by the company, the keel having been laid in January. Her dimensions are,—length overall 100 ft., breadth 18½ ft., depth of hold 9½ ft., draft 6 ft. 10 in. She carries 2,000 gal. of oil in her tanks and has fresh water tanks with capacity of 11 tons. The propelling machinery consists of a 150 h.p. Fairbanks-Morse type C.O. oil engine using about 1/12 of a gallon of fuel oil per h.p. hour with the engine under full load. The auxiliary machinery is operated by a Fairbanks-Morse 6 h.p. type Z engine, driving a line shaft mounted on SKF ball bearings. The hoisting equipment is operated by a Fairbanks-Morse 10 h.p. type Y semi Diesel engine. The speed of the ship is approximately 9½ knots an hour.

Polson Iron Works, Ltd., Toronto.—This shipbuilding plant, which was offered for sale by tender by the liquidator recently, under order from the Exchequer Court, is being offered for sale by private treaty, no tenders having been received.

Shelburne Shipbuilders, Ltd., Shelburne, N.S., launched the three masted schooner, Nellie T. Walters, May 3, for the trans-Atlantic fish carrying trade. She is owned by T. Walters, Garnish, Nfld., and is of 175 tons registered, and classed for 11 years in Bureau Veritas. The company has another schooner of 190 tons registered, under construction for Newfoundland parties.

Victoria (B.C.) Shipowners Ltd., Victoria, B.C.—The keel of the first of the four wooden barquentines of 2,400 tons capacity each, which are being built under aid by the Dominion Government, in order to relieve unemployment in British Columbia, was laid at the Cholberg shipyard, Victoria, May 1. These ships will be built to Lloyd's specifications, and under the supervision of a marine architect appointed by the Dominion Government. Full details of the agremeent under which the ships are being built were published in Canadian Railway and Marine World for May, page 276. The company's directors are:—J. W. Spencer, President and Chairman; C. Hoard, Vice President; J. O. Cameron, Capt. H. C. Hansen, W. Meed, Capt. M. D. Harbord, and F. B. Pemberton. Edwin Tomlin is Secretary-Treasurer.

G. E. Wagstaff, Port Greville, N.S., launched the tern schooner Burpee L. Tucker recently. She is 465 tons register, and equipped with auxiliary engine for hoisting sails and anchors. She was chartered to load plaster at Walton, N.S., for New York and is in charge of Capt. S. T. Salter, Parrsboro, N.S.

Wallace Shipyards, Ltd., North Vancouver, B.C., has been given a contract for repairs to the Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince John, which was damaged in collision with the same company's s.s. Prince Albert, near Dead Tree Point, recently. The contract price is stated to be $49,000. In addition to the repairs necessary, it is stated that the passenger accommodation will be increased.

Yarrows, Ltd., Victoria, B.C., has been given a contract for repairs to the Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince Albert, which was damaged in collision with the same company's s.s. Prince John, near Dead Tree Point, recently.

Atlantic and Pacific Ocean.

The Zenith Transportation Co., operating to European points out of New York, is reported to have decided to make St. John, N.B., a port of call both inward and outward.

Canadian Pacific Ocean Services' s.s. Pretorian, from St. John, N.B., arrived at Glasgow, Scotland, May 4, in tow, having broken her rudder. She was docked there for repairs.

The St. Lawrence navigation season was reopened Apr. 25, by the arrival at Montreal of Canadian Government Merchant Marine's s.s. Canadian Aviator, from Glasgow, Scotland.

A London, Eng., press dispatch, May 13, stated that a well known British salvage firm is likely to undertake the raising of the s.s. Lusitania, which was torpedoed by the Germans during the war, off the Irish coast.

The first passenger steamships of the St. Lawrence navigation season to arrive at Quebec were the Anchor-Donaldson Line s.s. Saturnia and the Canadian Pacific Ocean Services s.s. Victorian, on May 3, in the order named and within an hour of each other.

The Ulster Steamship Co. (Head Line) announce that it will commence a direct steamship service between Montreal and Rotterdam, June 5, with the s.s. Dunaff Head, 8,000 d.w. tons capacity. Other steamships of the same class will be put in the service if trade warrants it.

Canadian Pacific Ocean Services' s.s. Empress of Britain is being equipped with fuel oil burning apparatus and is being generally overhauled and refitted for service on the St. Lawrence route. She did considerable war work, and carried a number of troops to and from Mediterrannean ports, especially to Gallipoli.

The Red Star Line's steamship service between Montreal and Antwerp, Belgium, was commenced May 22, when the s.s. Western Star sailed from Montreal, after having been overhauled by Canadian Vickers Ltd. It is intended to make three sailings each month; the other steamships which will be used, being, Western Ally, Aledo, Westpool and Henry Clay.

Maritime Provinces and Newfoundland.

T. M. Kirkwood, Montreal, is reported to have bought 10 wooden drifters, built in Canada for war purposes, and anchored in Halifax harbor since the signing of the armistice.

The Reid Newfoundland Co. was reported to be negotiating in Great Britain recently, through its Vice President, R. G. Reid, for two steamships, to replace the two wrecked steamships, Dundee and Ethie, for its coastal service.

Canada Steamship Lines Ltd., is reported to be considering the establishment of a steamship service between Montreal, Charlottetown, P.E.I., Sydney, N.S., and St. John's, Nfld. Prior to the war a freight and passenger service over this route was operated by the Black Diamond Steamship Co.'s steamships, City of Sydney and Morwenna.

The Montreal Transportation Co.'s s.s. Atikokan, which was laid up at Sorel, Que., for the winter, was expected at Sydney, N.S., during May, to enter the ore and coal trade. She was built at West Superior, Wis., in 1895, and named John D. Trevor, and is of the whaleback type. She was in the Great Lakes trade for a number of years, and was taken to Quebec last year, having been cut in two to pass through the canals. She is screw driven by engine of 145 h.p. and has the following dimensions,—length 362 ft., breadth 38.8 ft., depth 18 ft.; tonnage 2,004 gross, 1,292 net.

The report of the port of St. John, N. B., for the year ended Mar. 31 shows that 412 steamships, and 191 sailing ships, with a total tonnage of 1,107,801 entered from sea, and 483 steamships and 178 sailing ships with a total tonnage of 1,-037,876 cleared outward. The tonnage increases over the previous year are 241,-604 in arrivals, and 266,614 outward. During the winter, between Nov. 1, 1919, and May 1, 1920, 12,004,157 bush. of grain passed through the C.P.R. elevators at St. John, compared with 17,863,766 bush. for the same period in the previous year. The Canadian National Rys. elevator at St. John handled 3,241,289 bush. of grain, against 1,378,654 bush. during the same period in the previous year.

The Dominion Coal Co., operating the Black Diamond Steamship Line, is reported to have bought the s.s. Daghild from the British Ministry of Shipping. She was built at Sunderland, Eng., in 1916, and is screw driven by engine of 570 h.p. Her dimensions are,—length 455 ft., breadth 58.1 ft., depth 33.2 ft.; tonnage, 8,000 gross, 4,862 net. She was owned formerly by Jenkins Bros., Cardiff, Wales, and, prior to the war, was chartered to the Dominion Coal Co., but was requisitioned by the Ministry of Shipping for war purposes. The Dominion Coal Co.'s charters, unexpired at the commencement of the war, still hold good, and the balance of the charter terms will, it is said, be carried out by the steamships, Rose Castle, Kamouraska, Lord Strathcona, Wabana, Lingan and Hochelaga. The first named ship is expected to arrive at Sydney, N.S., during June, the others following at intervals.

Province of Quebec.

The Quebec Harbor Commission as reconstituted by order in council of Apr. 21, consists of Major General Sir David Watson, K.C.B., C.M.G., Chairman; Alfred Samuel Gravel, and Birgadier General T. A. Tremblay, D.S.O.

The Gulf of St. Lawrence Trading & Shipping Co. has been placed under the management of T. Harling & Co., Montreal, and it is stated that the service will be considerably improved between Quebec and lower gulf ports. It is also stated that a number of ships will be added to the fleet, either this year or next.

The s.s. Alberta, owned formerly by La Cie Generale d'Enterprises Publiques Ltee, Levis, has been dismantled and removed from the register. She was built at Sorel in 1905, and was screw driven by engine of 42 h.p., and had the following dimensions,—length 96.4 ft., breadth 17.7 ft., depth 6.9 ft.; tonnage, 125 gross, 62 net.

The s.s. General Morrison, one of a number of steel steamships built by the Dominion Shipbuilding Co., Toronto, during 1919, on yard account, most of which have been sold to Norwegian owners, has also been sold to Norwegian interests, and transfeered from the Canadian register. Her dimensions are,—length over all 261 ft., length between perpendiculars 251 ft., breadth 43½ ft., depth 24¼ ft.; tonnage, 2,490 gross, 1,519 net.

Ontario and the Great Lakes.

The Governor of New York State has signed a bill appropriating $1,850,000, to complete the barge canal terminals at Buffalo, Rochester, and New York City.

It is proposed to form a Trent Valley Canal Waterways Association, amongst municipalities along the Trent canal, with the object of promoting tourist traffic to and from various points of interest along the route.

The Dominion Public Works Department has awarded a contract for the building of a sea wall at Toronto Island to Randolph McDonald Co., Toronto. The plant and material are being assembled on the site and work was expected to commence at the end of May.

It was reported May 13 from St. Catharines that work on the Welland ship canal had been resumed on a small scale, some dredging on section 5 having been started. It was also stated that the Dominion Dredging Co. was assembling its material for work on section no. 1 in the harbor at Port Weller.

The Pittsburg Steamship Co. is reported to have made arrangements for the construction of a dock with cargo handling machinery at Sault Ste. Marie, Mich. The dock will have a frontage of 748 ft. and will cost approximately $100,-000. The contract has been awarded to the Great Lakes Dredge & Dock Co.

The steamships Bickerdike, Cadillac, Fairfax, Haddington, Ionic, Maplehill, Murray Bay, Omaha, St. Irene, Tayler and Wyoming, owned by Canada Steamship Lines, have had their names changed to Maplebrook, Maplehurst, Maplegrove, Maplehill, Maplebranch, Maplegrange, Cape Diamond, Maplegreen, Cape St. Francis, Mapleheath and Mapleglen respectively.

The U.S. Lake Survey reports the stages of the Great Lakes in feet above mean sea level for April, as follows:—Superior, 602.26; Michigan and Huron, 580.54; St. Clair, 574.80; Erie, 571.64, and Ontario, 245.55. Compared with the average April stages for the past 10 years, Superior was 0.62 ft. above; Michigan and Huron, 0.26 ft. above; Erie, 0.76 ft. below, and Ontario, 0.81 ft. below.

After a visit of Public Works Department engineers to Port Stanley, at the end of April, it was stated that the work of improving the harbor there would be undertaken immediately, this year's work to consist of dredging the turning basin, channel and outer harbor, the removal of the most dangerous portion of the submerged east pier, and the continuation of work on the west pier, which was stopped at the commencement of the war.

G. Sudds, as owner of the schooner Robert McDonald, which sank at the foot of Brock St., Kingston, last autumn, was summoned to the police court there, May 6, for refusing to comply with an order to remove the wreck. He pleaded that, having no funds, he would have to abandon the ship, and allow the city to remove the wreckage, but it was explained that although he was willing to abandon the wreck, that did not relieve him of the responsibility of clearing it up.

The s.s. A. E. Ames, owned formerly by Merchants Mutual Lines Ltd., and operated by Canada Steamship Lines Ltd., has been sold to U.S. parties, and transferred to U.S. register. She was built at Wallsend-on-Tyne, Eng., in 1903, her dimensions being, length 246 ft., breadth 37 ft., depth 24 ft.; tonnage, 1,637

gross, 1,020 net. She is equipped with triple expansion engine with cylinders 20½, 33 and 59 in. diar. by 36 in. stroke, and supplied with steam by two Scotch boilers, each 13½ ft. diar., by 10¼ ft. long, at 180 lb.

The s.s. Lakeside, bought recently by John E. Russell, contractor, Toronto, from M. J. Hogan, contractor, Port Colborne, Ont., has had her name changed to Joseph L. Russell. She was built at Windsor, Ont., in 1888 and has an oak hull with the following dimensions,—length b.p. 121 ft., breadth moulded 26 ft., depth moulded 9¼ ft. She is equipped with a fore and aft compound engine, having cylinders 19 and 32 in. diar. by 26 in. stroke, 240 i.h.p., at 100 r.p.m., and supplied with steam by a single fire box boiler 8½ ft. diar. by 1 4ft. long at 114 lb.

The s.s. North West, owned by C. A. Barnard, Montreal, was seized May 11, while at the Davie Shipbuilding & Repairing So.'s yard at Levis, on account of Buffalo parties, for an amount of $76,997.62 which is stated to be on account of a mortgage held in Buffalo. It is stated that the Davie Shipbuilding & Repairing Co. have a claim against the ship for $600,000. The ship, which came from Buffalo, N.Y., was cut in two, to pass through the canals, and is still in the same position. The name of the ship is stated to have been changed to Maplecourt and to have been transferred to the Canadian register.

The s.s. Wyoming, owned by Canada Steamship Lines, Ltd., and which was bought recently from the Wyoming Steamship Co., Buffalo, N.Y., has been transferred to the Canadian register under the name of Mapleglen. She was built at Buffalo, N.Y., in 1887, and has an oak hull with the following dimensions,—length b.p. 241 ft., breadth moulded 40 ft., depth moulded 24 ft. She is of the spar deck type, with steel boiler house, diagonal strapping on frames, steam pump wells, etc. She is equipped with fore and aft compound engine, with cylinders 24½ and 50 in. diar. by 52 in. stroke, 600 i.h.p. 79 r.p.m., supplied with steam by two fire box boilers, each 13½ ft. long by 10 ft. 8 in. diar. at 110 lb.

The Montreal Transportation Co. has bought the s.s. Pawnee, owned formerly by H. McMorran, Mich., and has transferred her to the Canadian register, under the name of Maplegulf. She was built in 1889 and underwent large repairs in 1910. Her hull is of oak and she is of the well deck type, with steel arches, iron lined boiler house, and with bow sheathed for operation in ice. Her dimensions are,—length b.p. 174 ft., breadth moulded 32 ft., depth moulded 13 ft.; tonnage 639 gross, 475 net. She is equipped with a Steeple compound engine, with cylinders 22 and 44 in. diar. by 40 in. stroke, 390 i.h.p., at 80 r.p.m., supplied with steam by a single firebox boiler 10 ft. 2 in. diar. by 16 ft. long at 120 lb.

The s.s. C. W. Chamberlain was damaged by fire at Cornwall, Ont., April 30, while undergoing extensive repairs. She is stated to be owned by the Martin Transportation Co., Kingston, Ont. She has an oak hull and was built at Walkerville, Ont., in 1881, and named C. N. Pratt, was rebuilt in 1890, and her name changed to C. W. Chamberlain. Her dimensions are,—length b.p. 127 ft., breadth moulded 26½ ft., depth moulded 9 ft. 7 in.; tonnage, 385 gross, 243 net. She is equipped with fore and aft compound engines, having cylinders 18 and 32 in. diar. by 26 in. stroke, 280 i.h.p., at 100 r.p.m., by Cuyahoga Furnace Co., Cleveland, Ohio, and supplied with steam by a Scotch boiler 10 ft. diar. by 11 ft. long, at a working pressure of 100 lb., by J. Inglis & Co., Toronto. Until recently she was owned by James Swift & Co., Kingston, Ont., who bought her about two years ago from Midland Transportation Co., Midland, Ont.

Manitoba, Saskatchewan and Alberta.

A party of about 30 men were reported leaving Victoria and Vancouver early in May for Fort Smith, Alta., to build a number of wooden river boats for the Edmonton, Dunvegan and British Columbia Ry. for operation on the Peace River in connection with the railway.

British Columbia and Pacific Coast.

A Victoria press report states that the H.M.C.S. Rainbow will be offered for sale by tender, prior to which her guns will be removed.

Reports from Yukon, about the middle of May, stated that the ice was rapidly breaking up on the Yukon River south of Dawson, and that steamboats were preparing to sail for the south for supplies for Dawson and lower river points.

A steamship service will be inaugurated early in July between Victoria, B.C., and Havre and Calais, France, via the Panama canal. The s.s. Pacific, 6,500 tons, will take the first sailing, and it is expected that grain will form the chief part of the cargo.

The C.P.R. is reported to be contemplating additional passenger accommodation to the s.s. Princess Royal. This, it is stated, will be placed in a new deck house, situated on the after boat deck, and will consist of 10 rooms for 10 passengers, thus giving a total accommodation for 164 state room passengers.

The Atlantic Salvage Co., which is working on the wrecked s.s. Platea, at Sable Island, expects to have the ship in Halifax harbor about the end of May, unless unforeseen difficulties are met with. The s.s. Platea, which was owned formerly by the Thomson Line, St. John, N.B., was sold, about a year ago, to Greek interests, and was wrecked on Sable Island last autumn.

The schooner Lady Mine has been bought by the Lady Mine Shipping & Fishing Co., Vancouver, for operation in the coasting trade from Prince Rupert to Stewart, Anyox and Alice Arm. She was built at Port Ludlow, Wash., in 1880, her dimensions being,—length 76 ft., breadth 21.9 ft., depth 8.4 ft.; tonnage, 55 registered. She is equipped with auxiliary power.

C.P.R. British Columbia Coast Service employes are negotiating with the management for changes in their general working conditions. The company has proposed an increase of $10 a month in wages, on the understanding that the present hours of work are maintained, or in lieu of this a change to an 8-hour day at the present rate of wages. It is also proposed to reclassify the men, whereby there would be two classes instead of three as at present. The whole proposals are said to have been laid before D. C. Coleman, Vice President, Western Lines, C.P.R.

H. G. Kelley, President, Grand Trunk Pacific Ry., replying to a letter from a committee of Prince Rupert men, relative to the operation of the Grand Trunk Pacific Coast Steamship Co. from Prince Rupert, instead of from Vancouver, has written to the effect that it must be admitted that the original selection of Vancouver as headquarters for the steamship line was justified by conditions at the time of organization. Certain changes have been made, and it is felt that conditions have warranted them, and acting on this the accounting office has been removed to Prince Rupert, and a Superintendent has been appointed there. The work on the company's ships is now all being done at the Prince Rupert shipbuilding plant. The force remaining at Vancouver is small in respect to the number of employes, and the whole matter of removal is under consideration, and will probably be dealt with when the whole situation as regards the operation of the company is settled.

Harbors and Rivers Estimates.

The further supplementary estimates for the year ended Mar. 31, 1920, submitted to the House of Commons recently, contain the following items, under public works, chargeable to income:—

NOVA SCOTIA.	
Avon River bridge at Windsor, to pay Nova Scotia Provincial Government in full final settlement of all claims whatsoever for damage done or that may be done to the bridge by the construction by the Public Works Department in 1897-8 of a shear dam from the bridge abutment on the Falmouth side of the river	$7,164.57
QUEBEC.	
Fort William, wharf repairs and improvements, further amount required	$ 350.00
Vercheres, wharf, further amount required	1,504.13
ONTARIO.	
Belleville harbor, improvement to wharf and warehouse, further amount required	916.35
Midland, repairs to wharfs, further amount required	1,800.00
Port Hope, repairs to pier, further amount required	1,800.00
MANITOBA.	
Little Pehbina river, diversion to Pelican Lake, further amount required	$1,146.37
MISCELLANEOUS.	
Surveys and inspection, further amount required	$15,000.00

Mail Subsidies and Steamship Subventions.

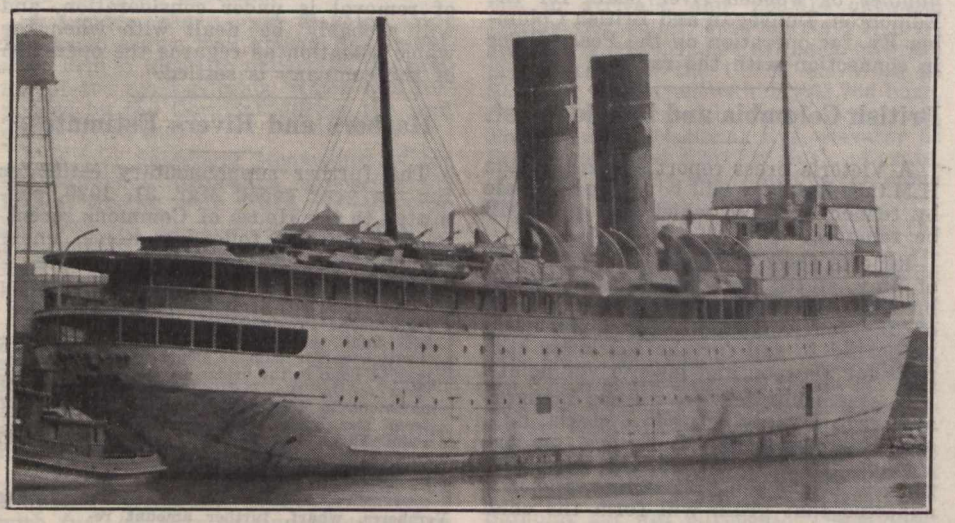
The further supplementary estimates for the year ended Mar. 31, 1920, submitted to the House of Commons recently, contain the following items:—

Victoria, Vancouver, way ports, and Skagway, steam service between, further amount required	$12,500.00
Vancouver and ports on Howe Sound, steam service between	3,334.00
Expenses in connection with supervision of subsidized steamship services, further amount required	500.00

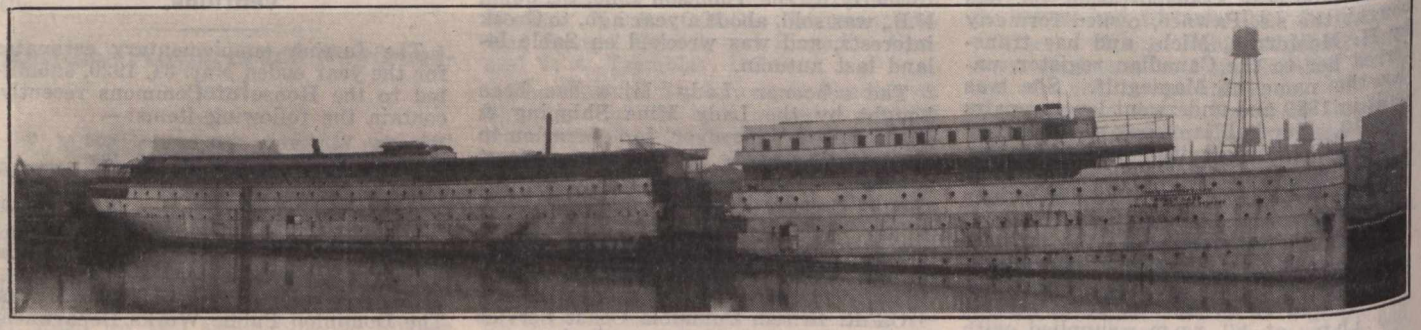
Contracts Let for Marine Public Works. The Dominion Public Works Department has let the following contracts: General restoration and fitting up of interior, including electric elevator, of marine stone building on King's wharf, Quebec, Que., Apr. 21, L. H. Peters Ltd., Quebec, Que., $8,205; construction of crib work extension to wharf at Sober Island, N.S., Apr. 22, M. Naugle, West Lawrenctown, N.S., schedule of prices; construction of harbor works, turning basin, ventilation channel, breakwater at Toronto, Roger Miller & Sons, Toronto, on basis of cost plus 7½%; construction of wharf at Stewart, B.C., Apr. 22, W. T. Muse, Prince Rupert, B.C., schedule of prices; repairs to dredge no. 1 (Quinlan & Robertson), May 11, Montreal Dry Dock & Ship Repairing Co., Montreal, $13,625.

Cutting in Two of Steamship North Land.

The s.s. North Land, 400 ft. long, 44¼ ft. beam, 25 ft. moulded depth, 17 ft. draft, 4,870 tons burthen, 2 quadruple compound engines of 3,500 h.p. each and 10 Scotch marine boilers, built, owned and operated by the Northern Steamship Co. to carry passengers between Chicago and Buffalo, and Duluth and Buffalo, in connection with the Northern Pacific Ry., which is said to have been the only steamship of U.S. registry built to carry passengers and no freight, having a capacity of 500 first class passengers, was cut in two parts last autumn at the Cowles shipyard, Buffalo, N.Y., while afloat alongside of its wharf in Buffalo River; wooden bulkheads were placed in the ship about 10 ft. apart and made water tight. The ship was then ballasted with pig iron, so as to float properly after being separated in to two sections, a canvas jacket was placed around the ship on the outside of the hull, and the ship was separated by burning with an acetylene torch. The burning was done in 2 days of 8 hours each, the number of feet burned was 80 below the water line or under water, and in some places, and especially at the keel place at the bottom of the ship, were 3 thicknesses of ¾ in. steel plate. The cutting was begun at the bottom of the ship and proceeded from that to the top of each side. Some experts are said to have declared that this could not be done in water, and the ship made to draw 14 ft. of water to pass through the Canadian canals and St. Lawrence River to Lauzon, Que., where the ship was to be joined together by the Davie Shipbuilding and Repairing Co., which is the new owner. The sister ship, North West, was taken through the same route in 1918; her cabins were taken off and engines and boilers removed, and the ship placed in drydock to be cut in two at a cost of about $250,000. The cost of cutting the North Land in two while afloat and making her ready for the voyage was less than $60,000. Benj. L. Cowles, President, and David Welch, Superintendent, Cowles Shipyard Co., agreed to do the work on the North Land, as heretofore outlined, and guaranteed the passage through the canal for not to exceed $75,000. The work was done in 6 weeks time. She left Buffalo in two sections, the forward section leaving on Nov. 9, 1919, in tow of the Reid Wrecking Co.'s tugs Smith, and Manistique. She passed through the Welland Canal and laid at Port Dalhousie until Nov. 25, when she left there in tow of the Montreal Transportation Co.'s tugs Bronson and Thompson, arriving in Sorel Dec. 6. The after section left Buffalo Nov. 13 in tow of the tugs Smith and Manistique, passed through the Welland Canal and left Port Dalhousie on Nov. 28, arriving at Coteau Landing, Que., Dec. 12.



Steamship North Land, before being cut in two.



Steamship North Land, after being cut in two and separated.

It has been impossible to get any definite information as to when and where the North Land's two sections are to be re-joined. It was first reported that the ship had been sold to the Davie Shipbuilding & Repairing Co., and would be re-joined by that company at Lauzon, Que. On enquiring of that company's President, C. A. Barnard, Montreal, we were informed that the ship had been re-transferred to the Northern Steamship Co., represented by E. Parsons, of Parsons & Eggert, insurance brokers., N.Y. An enquiry to him was replied to by Henry Parsons, Vice President, Paragon Shipping Corporation, New York, who stated that he was taking care of all matters in connection with the North Land and that the only information he could give was that, in order that other ships might go through the Coteau Landing lock, the North Land's stern section would probably be moved to the bow section's present location, which, as above stated, we understand to be at Sorel, Que.

Since the above was put in type, we were advised, on May 10, that the North Land's stern section had been taken to Montreal, pending instructions from the Northern Steamship Co.'s directors, as to whether the ship will be sold as it is, or whether the two sections will be joined together again.

Rebates on Newfoundland Shipbuilding.—A bill to amend the Shipbuilding Act passed the Newfoundland House of Assembly May 6, providing rebates of duty paid on materials used in the construction of ships built in the colony, the keels of which were laid after the passing of the act, and of a greater tonnage than 150, and on ships of greater tonnage than 120, the keels of which were laid after Oct. 19, 1917, and before the passing of th eact. It also provides that no bounty, as provided in chap 176 of the statutes, shall be paid on any ship, the keel of which was laid after the passing of the act, whose tonnage on builder's measurement exceeds 150 tons, provided, however, that if the tonnage does exceed 150 tons and does not exceed 160 tons, and it is certified that the builder bona fide attempted to confine the measurement to 15 0tons, the bounty may be paid on 150 tons. Considerable opposition was shown to the retroactive clause of the bill.

B. C. Yacht and Boat Builders Co. Ltd. has been incorporated under the British Columbia Companies Act, with $10,000 authorized capital, and office at Victoria, to build and repair mercantile and pleasure ships of every description, and carry on business as engineers, ship chandlers, sail makers, etc. It is stated, locally, that the incorporators are about 12 veterans of the recent war, and that they have obtained a grant of $10,000 from the British Columbia Government, to assist them in the business.

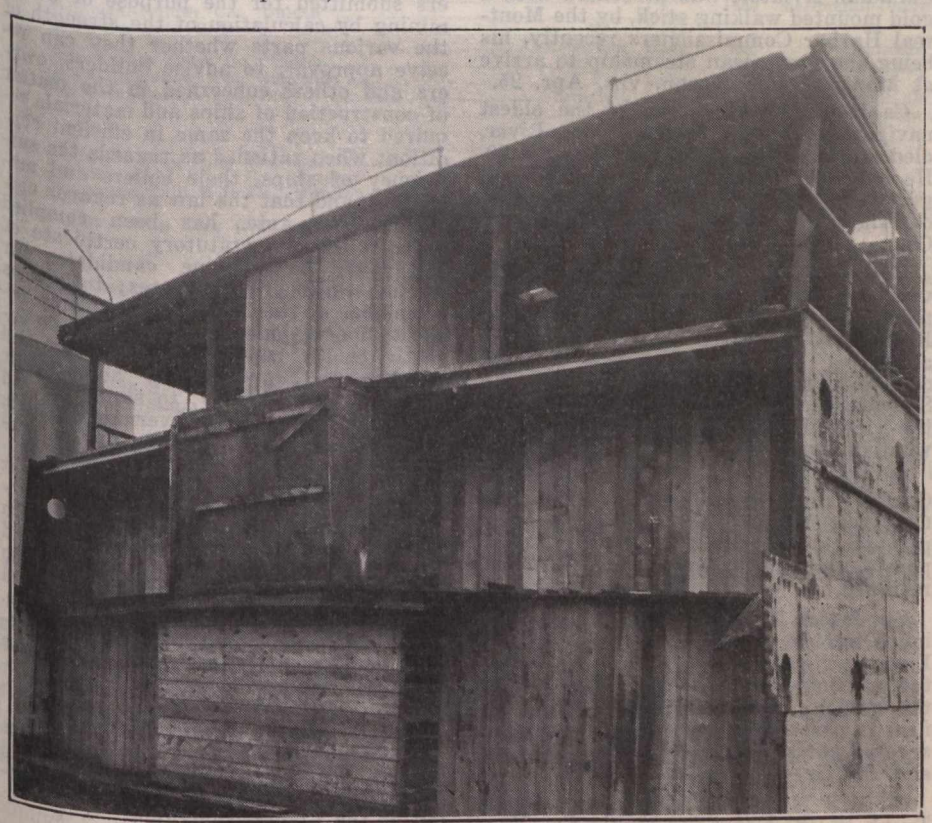
C. G. S. Canada.—The Minister of Marine stated in the House of Commons recently, in answer to a question, that no instructions had been issued that the C. G. S. Canada is to be sold, and added that this ship had been replaced by the C. G. S. Hochelaga.

Dominion Wreck Commissioner's Enquiries and Judgments.

Enquiries have been held and judgments delivered respecting the following casualties:—

Canadian Voyageur-Howard D. Troop Collision.

Held at St. John, N.B., Apr. 23, into the collision of Canadian Government Merchant Marine's s.s. Canadian Voyageur, and the St. John pilot boat Howard D. Troop, in the Bay of Fundy, Apr. 17, resulting in the loss of the latter ship, by Capt. J. B. Henry, commissioner, and Capts. A. J. Mulcahy and S. Orr, as nautical assessors. The Howard D. Troop was a schooner rigged ship, with 60 h.p. auxiliary engine, for a 7 knot speed, and at the time of the collision had 4 licensed pilots and 3 apprentice pilots on board. On Apr. 17, when the schooner sighted the steamship, the weather was dark and clear, with a strong east breeze, and a heavy sea, and she was running down the south channel, between Petit Passage and Grand Manan. The usual blue flare was shown by the schooner, and answered, and as the ships approached, the Voyageur's head veered to north and east, showing all three lights, also the lantern on the port side, to indicate the ladder. When the small pilot boat was leaving the schooner, the Voyageur's head veered to south, then making the starboard the lee side, the boat passing round the stern. The schooner then ran down across the Voyageur's bow for about half a mile, under sail only, and when she tacked she was about abeam, or slightly abaft the steamship's beam. After tacking, the helm was put down, preparatory to picking up the small boat, and it was noticed that the Voyageur was not going ahead as expected, but drifted down on the schooner. The schooner, being in the lee of the steamship, did not feel the effect of the breeze on her sail, and the auxiliary engine was not going long enough to enable her to get out of the way. On the Voyageur, the pilot having ordered full speed ahead, and the telegraph having been moved accordingly, the answer came from the engine room, "Stop," and the master went to the engine room to ascertain how long before the engines could proceed, notwithstanding the fact that there is a speaking tube. He returned to the bridge, after an absence of two minutes, and found the pilot boat 30 or 40 ft. from the ship's side, heading at an angle of about 45 deg. from the starboard beam. About two minutes after, he was informed by the engine room that the engines were all right, but it was then too late.



After Section of Steamship North Land, after being separated, showing wooden bulkhead.

The court found that the Canadian Voyageur's engines could not proceed, on account of being choked, and not responding as quickly as the occasion demanded. The master should not have left the bridge without leaving a competent officer in charge, ignoring the speaking tube, when it was of vital importance that he should have remained and signalled the pilot boat that his vessel was temporarily out of control. The opinion was also expressed that the pilot boat did not make sufficient allowance for the lee drift of the steamship, according to the ordinary practice of seamen, and it found that the master of the pilot boat adopted a wrong manoeuver in putting his auxiliary engine full speed ahead, instead of astern, away from danger, at a critical time, and criticized the fact that the man who attended the engine was away on the small boat, and that the master left the wheel to attend to the engine. Everything was done in the Voyageur's engine room that the occasion required, and it was found that Capt. J. D. Mackenzie, of the Canadian Voyageur, and Capt. F. McKelvey, of the Howard D. Troop, committed errors in leaving their respective decks when their duties were to overcome the accident, and that therefore they both contributed to the collision, and were cautioned accordingly.

Toronto Harbor Improvements. — T. Foster, M.P. for York, Ont., asked in the House of Commons recently:—"Is it the government's intention to contribute to the improvements in Toronto harbor in the same proportion as in the other large harbors of the Dominion? If not, why not?" Hon. J. D. Reid, acting Minister of Public Works, replied:—"Up to the commencement of the Canadian Stewart Co.'s contract for Toronto harbor improvements, which was the portion of the comprehensive scheme of development to be done at the direct cost of the government, there has been expended by the Public Works Department in the improvement of Toronto harbor $2,323,-191.75. Since that date, there has been expended on the harbor by the Public Works Department $3,691,068.01, and further work, estimated to cost $1,500,-000, is to be proceeded with during the construction seasons of 1920 and 1921."

Ships under Board of Railway Commissioners.—J. E. Armstrong, M.P. for Lambton, Ont., asked in the House of Commons recently, how many ships are under the Board of Railway Commissioners, as regards rates, tolls, tariff agreements, and arrangements, what are their names, the deadweight tonnage of each, and the routes on which they run? The Minister of Railways replied that the Board of Railway Commissioners had not the definite information that would enable it to reply to these questions. Tariffs filed in conformity with the Railway Act, secs. 336 and 358, do not show the names of the ships or their tonnage, nor does the act call for this information.

The C. G. S. Champlain has been sold by the Marine Department to the Gulf of St. Lawrence Shipping & Trading Co. for $61,050. She was built at Paisley, Scotland, 1904, and has the following dimensions,—length 120 ft., breadth 30¼ ft., depth 17½ ft.; tonnage, 522 gross, 235 net. She is equipped with compound surface condensing engine, with cylinders 22½ and 46 in. diar. by 24 in. stroke, and supplied with steam by a Scotch boiler, 16 ft. diar. by 11 ft. long, at 120 lb. working pressure. The company has appointed Capt. A. Fournier as master, and J. Costin as chief engineer.

Toronto Grain Elevators.—T. Foster, M.P. for York, Ont., asked the following question in the House of Commons recently:—In view of the strong representations made for the construction of elevators in Toronto harbor, is it the policy of the government to build such elevators or grant a bonus to assist in building them? Sir Geo. Foster replied: It is not the present intention of the government to construct or to aid in the construction of grain elevators in Ontario ports.

The Atlantic Coast Shipbuilders' Association states that on April 1st, 104 tankers, or 722,549 gross tons were building in U.S. yards on private account. New orders started during March totaled 129,455 gross tons. Revision of tonnage figures, however, would indicate an increase in tankers under construction at end of March of 133,984 tons, as compared with February.

Mainly About Marine People.

E. H. Beasley, Managing Director, Union Steamship Co. of British Columbia, Vancouver, was instantly killed May 24, when an aeroplane, in which he was accompanied by Major A. R. Baker, who was seriously injured, fell to the ground from a height of 2,500 ft., while taking a flight over Vancouver and district. At the time of the accident they were preparing to make a landing at Minor Park, Lulu Island. Mrs. Beasley had previously taken a flight in the machine and witnessed the accident.

Robert Bell, heretofore chief engineer of the Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince George, has been appointed Superintendent Engineer, Canadian Fish & Cold Storage Co., Prince Rupert, B.C.

Capt. R. Cann, who died at Yarmouth, N.S., recently, aged 66, was in Hugh Cann & Son's service there for a number of years, in charge of sailing ships, and later was engaged with a New York shipping company, but retired from active service a few years ago.

G. M. Bosworth, Chairman, Canadian Pacific Ocean Services, Ltd., and Mrs. Bosworth, who spent the winter at the Ritz-Carlton, Montreal, have gone to their summer home at Senneville, Que.

Harry F. Bradley, Assistant General Passenger Agent, Canadian Pacific Ocean Services, Ltd., Montreal, died at Gaspe, Que., May 19, where he had gone for his health. He was born at Waterville, Que., July 20, 1876, and tentered transportation service in 1898, since when he has been, to 1906, in various positions in the Passenger Department, Montreal; 1905 to 1912, General Agent, Toronto; 1912 to July 15, 1917, Manager, Passenger Department, all with H. & A. Allan, General Agents, Allan Line Steamship Co., and from Nov., 1917, was Assistant General Passenger Agent, Canadian Pacific Ocean Services Ltd., Montreal.

Clarence I. de Sola, who was prominently engaged in the steamship business in Montreal, and acted as Canadian representative for Swan Hunter and Wigham Richardson, Ltd., shipbuilders, Wallsend-on-Tyne, Eng., died at Boston, Mass, May 12. He was born at Montreal, Aug. 15, 1858, and was appointed Consul for Belgium at Montreal in 1904, in recognition of his services in promoting commerce between Canada and Belgium. From 1887 he was Managing Director of the Comptoir Belgo-Canadian, a syndicate of leading Belgian steel manufaccontractors, and in this capacity he carturers, structural bridge and railway ried out several contracts in Canada, among them being lock gates, etc., on the Soulanges and Trent Canals, the retracking of portions of the Intercolonial and Prince Edward Island Rys., and the construction of several public bridges. As a director and Canadian representative of Swan Hunter and Wigham Richardson Ltd., he was responsible for building several steamships for Canadian trade on the Great Lakes, St. Lawrence River and the Atlantic Ocean, some of these being for Canadian Government service. He was President, Ocean & Inland Transportation Co., director, Donald Steamship Co., Canadian Marine & Commercial Co., President, Oceon Steamship Co. of Canada; Managing Director, Walford Forwarding Co., and was associated with several other transportation companies. During the war he acted as an official of the Canadian Patriotic Fund, was Vice President of the Belgian War Relief Fund, and for his services was made a Chevalier of the Order of Leopold, by the King of the Belgians.

Capt. Frederick Elliott, President and Manager, Victoria Navigation Co., Thurso, Que., died suddenly on the train at Calumet, while travelling between Thurso and Montreal, May 9. He was one of the best known navigators on the Ottawa River.

R. B. Glenn, a member of the International Joint Waterways Commission, which is holding sittings at various points in the west in connection with the proposals for the improvement of the St. Lawrence route, died suddenly, from heart failure, at Winnipeg, May 16.

Capt. H. S. Hilton, master of the Canadian Government Merchant Marine s.s. Canadian Aviator, was presented with a gold mounted walking stick, by the Montreal Harbor Commissioners recently, his being the first ocean steamship to arrive at Montreal this season, viz., Apr. 25.

Capt. C. Hinckley, one of the oldest navigators on the St. Lawrence River, died at Kingston, Ont., May 13, aged 79. He served for many years under the Folger Co., out of Kingston, and later under the Richelieu & Ontario Navigation Co.

Commander B. L. Johnston, D.S.O., who resigned as Superintendent of British Columbia Pilotage District, Victoria, B.C., recently, is reported to have been appointed Manager of a new whaling company, with a station on Barclay Sound, and to have left for England with the view of buying two steamships for whaling purposes.

R. Knox, heretofore chief engineer, Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince Albert, has been appointed chief engineer of the same company's s.s. Prince George, vice R. Bell, resigned.

Sir James McKechnie, K.B.E., Managing Director, Vickers Ltd., of London, Eng., is visiting Canada, and is touring the properties owned and controlled by the various companies with which his firm is associated, as well as inspecting several ports on the Canadian seaboard and the Great Lakes.

C. H. Nicholson, Manager, Grand Trunk Pacific Coast Steamship Co., Vancouver, B.C., has been appointed a special commissioner for British Columbia, in connection with the aerial derby round the world, which is to take place between July 4 and Jan. 3, under the auspices of the Aero Club of America and the Aerial League of America. He will supervise the arrangements necessary for the convenience of the flying men on their flight up the Pacific coast en route to Japan.

J. W. Norcross, President Canada Steamship Lines, and **H. B. Smith,** President Northern Navigation Co., left Sarnia, Ont., May 19, on the s.s. Harmonic, for the head of Lake Superior, accompanied by Sir James McKechnie, Managing Director, Vickers Limited, England, and a number of persons engaged in North Atlantic shipping.

H. B. Smith, President, Collingwood Shipbuilding Co., and Northern Navigation Co., and a director Canada Steamship Lines, etc., has removed from Owen Sound, Ont., to Toronto, where he has bought a house at 355 St. Clair Ave. West.

General Steamship Inspector for Collingwood.

The Civil Service Commission gave notice recently that applications would be received from persons qualified to fill the following position:—A Steamship Inspector (General) at Collingwood, Ont., in the Marine Department, at an initial salary of $2,700 a year, which will be increased upon recommendation for efficient service at the rate of $180 a year, until a maximum of $3,240 has been reached. In addition to the above compensation, the salary will be supplemented by a bonus as provided by law.

Duties.—To inspect the boilers and machinery and hulls and equipment of steamships during construction, and from time to time as required by law, to determine whether they are sufficient for the service intended and in good condition; to examine plans of ships and their equipment, marine machinery and boilers submitted for the purpose of determining by calculation of the strength of the various parts whether they can receive approval; to advise builders, owners and others concerned in the matter of construction of ships and materials required to keep the same in efficient condition; when satisfied as regards the sufficiency of ships, their boilers and machinery, and that the law as regards certified officers, etc., has been complied with, to issue a statutory certificate of inspection; to examine candidates for mining engineer certificates; to act as a member of the Board of Steamship Inspection occasionally as required; to investigate the report on accidents and breakdowns happening to ships, their boilers and machinery; to supervise and report on repairs to government ships, their boilers and machinery; and to perform other related work as required.

Qualifications.—Education equivalent to graduation in engineering from a technical school of recognized standing with a thorough knowledge of the theory and practice of marine engineering and ship construction; at least 12 years practical experience in the design, construction, maintenance or operation of ships, marine engines and boilers. While a definite age limit has not been fixed in this competition, age may be a determining factor when making a selection.

Examination.—Subjects and weight as follows: Education and Experience, 300; Oral Interview, if necessary in the opinion of the Commission, 100.

Welland Canal Lock Gate Accident.—The first lock gate accident of the season took place Apr. 29, when the Montreal Transportation Co.'s s.s. Stormount, while upbound and light, struck the upper gates of lock 3, carrying them out, and unstepping and damaging the tow path lower gate, necessitating the placing in position of three spare gates. The accident took place at 5.15 p.m., and the gates were in position and navigation was resumed by noon the next day, and, as there were no ships in the immediate vicinity, there was practically no delay to navigation. The ship was damaged to a minor extent, a line chalk being pulled out from its moorings, a plate in the compressor broken, several rail stanchions and part of the bulwarks broken, and the rudder slightly damaged. The rear slope of the easterly bank at the head of lock 2 was washed out, but not seriously. The cost of repairing the damage was about $7,500. It is stated that the cause of the accident was difficulty experienced in reversing.

United States Ships to go via the St. Lawrence to the Sea.

During the ensuing navigation season 57 steamships of about 4,250 d.w. tons each and 26 ocean going ships built on the Great Lakes for the United States Shipping Board, Emergency Fleet Corporation, will be taken through the Welland Canal, Lake Ontario, and the St. Lawrence River and Canals to the sea. We are advised by the Emergency Fleet Corporation's Montreal office, E. Quackenbush, agent, and M. A. Baisaire, Port Captain, that 35 of the ships are ready for delivery at the opening of navigation, and that the folowing is the estimated expenditure on them preparatory to their sailing from Montreal:—

57 Ships of about 4,250 d.w. ton.

Repairs, at $300 each	$17 100
Engineer stores, at $300 each	17,100
Steward supplies, at $2,000 each	114,000
Deck stores, at $300 each	17,100
Fuel oil estimate	200,000

26 Ocean going tugs, coal burners.

Fuel	$ 6,000
Stores, engineers, deck and steward, etc	2,800
Repairs	1,500
Total	$375,600

Following is a list of the ships and tugs. The number given of each is the Emergency Fleet Corporation's.—

Ships to be delivered in 1920.

No.	Builders.	Name.
1793	American Ship Bldg Co., Detroit	City of Flint
1794	" " " "	
1763		Detroit-Wayne
1880	Saginaw Ship Bldg Co., Saginaw	Elmac
1882	Great Lakes Eng. Works, Ecorse	Elmont Lake
1883	" " " "	Elmsford Lake
1888	" " " "	Elmwood Lake
1890	" " " "	Elsah Lake
1891	" " " "	Elva Lake
1799	" " " "	Elwin Lake
1801	American Ship Bldg. Co., Detroit	Falun Lake
1802	" " " "	Fandango Lake
1861	" " " "	Fandon Lake
1825	McDougal-Duluth Co., Duluth	Fargo
1826	American Ship Bldg Co., Lorain	Fenn Lake
1841	" " " "	Feodora Lake
1852	Toledo Ship Bldg. Co., Toledo	Fillmore Lake
1864	Globe Ship Bldg Co., Superior	Flag Lake
1865	McDougal-Duluth Co., Duluth	Floravista Lake
1866	" " " "	Florian Lake
1867	" " " "	Floris Lake
1824	" " " "	Flournoy Lake
1761	American Ship Bldg Co., Lorain	Franklin County
1754	Saginaw Ship Bldg. Co., Saginaw	Furnas Lake
1755	Manitowoc Ship Bldg Co., Manitowoc	Galien Lake
1760	" " "	Galisteo Lake
1763	Saginaw Ship Bldg Co., Saginaw	Ganado Lake
1764	" " " "	Gano Lake
1765	" " " "	Gara Lake
1775	" " " "	Gardeau Lake
1776	American Ship Bldg Co., Chicago	Gert Lake
1777	" " " "	Getaway Lake
1778	" " " "	Geyser Lake
2352	" " " "	Giddings Lake
1863	Globe Ship Bldg Co., Superior	Glaucus Lake
2353	McDougall Duluth Co., Duluth	Great Falls
2611	Globe Ship Bldg Co., Superior	Gunni Lake
1823	Manitowoc Ship Bdg Co., Manitowoc	Heresti Lake
1827	American Ship Bldg Co., Lorain	Henry County
1792	" " " "	Indiana Harbor
1860z	" " " "	Inglenook Lake
z	" " " Detroit	McCreary County
1797	American Ship Bldg Co., Detroit	Hancock County
2354	Globe Ship Bldg Co., Superior	Harminia Lake
2355	" " " "	Hector Lake
1844	Toledo Ship Bldg Co., Toledo	Pulaski
1747	Manitowoc Ship Bldg Co., Manitowoc	Ripon
1842	Toledo Ship Bldg Co., Toledo	Rushville
1759	Manitowoc Ship Bldg Co., Manitowoc	Sioux City
1862	McDougall-Duluth Co., Duluth	Sioux Falls
1881	Great Lakes Eng. Works, Ecorse	Slavi Lake
1800	American Ship Bldg. Co., Detroit	Tippah Lake
1798	" " " "	Treba Lake
1843	Toledo Ship Bldg Co., Toledo	Union Liberty
1796	American Ship Bldg Co., Detroit	Vinton County
1758	Manitowoc Ship Bldg Co., Manitowoc	Wauwatosa
1860	McDougall-Duluth Company, Duluth	Lacrosse

Tubs to be delivered in 1920.

No.	Builders.	Name.
2811	Northwest Eng. Co., Green Bay	Allouez
2516	Dachel-Carter B. Co., Benton Harbor	Badger
2576	Burger Boat Co., Manitowoc	Beagle
2587	Leathern & Smith Tow & Wreck Co., Sturgeon Bay	Bear
2785	" " " " "	Bullock
2788	" " " " "	Burro
2789	" " " " "	Camel
2810	Northwest Eng. Co., Green Bay	Fort Howard
2517	Dachel-Carter C. Co., Benton Harbor	Leopard
2044	Whitney Bros. Co., Superior	Kaleen
2066	Northwest Eng. Co., Green Bay	Moositauke
2069	" " " "	Outagamie
1786	Leathern & Smith Tow & Wreck Company, Sturgeon Bay	Ox
2574	Burger Boat Company, Manitowoc	Pointer
2809	Northwest Eng. Co., Green Bay	Pottawotamie
2070	" " " "	Pyos
2575	Burger Boat Company, Manitowoc	Spaniel
2067	Northwest Eng. Co., Green Bay	Toopi
2065	" " "	Vallonia
2808	Northwest Eng. Co., Green Bay	Green Bay
2040	Whitney Bros. Co., Superior	Kipkee
2041	" " " "	Kiron
2042	" " " "	Kitchi
2043	" " " "	Kolda
2573	Burger Bros. Co., Manitowoc	Setter
2807	Northwest Eng. Co., Green Bay	Tomah

Canadian Notices to Mariners.

The Marine Department has issued the following notices:—

British Columbia, Cousins Inlet, Wallace Bay.—T. S. Guns, a British Columbia pilot, Victoria, reports the existence of a rock near Wallace Bay, Cousins Inlet, about ½ mile, 128 degrees, from the light on Wearing Point, at a depth of 8 ft. The locality will be examined by the Hydraulic Survey as soon as possible.

British Columbia, Vancouver Island, Esquimalt Harbor.—Unchartered shoal spots have been found in Esquimalt harbor, at 4 points, at 21, 35, 34 and 33 ft. deep, respectively.

Nova Scotia, South Coast, Lunenburg Harbor.—The black can buoy on southeast point of Long shoal will be replaced by a black steel cylindrical gas buoy, showing an occulting white light, without further notice.

Ontario, Lake Erie, Pelee Passage.—During July the submarine bell, on the southeast shoal lightship, will be run continuously, to enable masters of ships equipped with submarine apparatus to test their apparatus and familiarize themselves with the use of submarine signals.

Ontario, Lake St. Clair.—At the mouth of the Thames River, at the outer end of the dredged cut, 1½ miles from the Thames River main light, the gas buoy is adrift; further notice will be given when it has been replaced.

Ontario, Lake Superior, Otter Island. It is proposed to establish a fog alarm at Otter Island light station on the northwest end of the island, and the establishment of a light will be deferred until construction is commenced, which will be about midsummer.

Ontario, Presqu'ile Bay.—The Brighton no. 1 range light tower has been blown down, and until it is re-erected, a temporary fixed white light, shown from a lantern on a pole, has been placed on the pier.

Ontario, Rideau Canal.—All lights on floats and tripods on the Rideau canal between Smiths Falls and Kingston have been discontinued.

Quebec, River St. Lawrence, Ile Verte. On the opening of navigation the fixed white range lights on Government wharf, 312 ft. from its outer end, will be changed to fixed red lights.

Quebec, River St. Lawrence, Ship channel between Quebec and Montreal.—On the opening of navigation, the spar buoy 79M, on the south side of the channel, south of Ile au Boeuf, will be replaced by a black, steel cylindrical gas buoy, showing an occulting white light.

Quebec, River St. Lawrence, Ship Channel between Quebec and Montreal.—On the opening of navigation, the buoys between curve 2 and curve 3, Lake St. Peter, were rearranged. The black spar buoys 45.1 and 69.1 were replaced by black steel cylindrical gas buoys showing occulting white lights. The black gas buoys 47.1 and 67.1 were replaced by wooden spar buoys. A black spar buoy 47 M. has been established on the east side of the channel, in Contrecoeur traverse curve, 1,400 ft. south of black gas buoy 45 M. and other buoys in this curve have been rearranged. At Pointe aux Trembles, the buoys have been rearranged, and a red spar buoy has been established opposite black can buoy 163 M., and numbered 164 M.

United States, Detroit River.—On or about May 3, the fixed white light on the east shore of Grosse Isle will be replaced by a flashing white light, showing a flash every two seconds.

United States, St. Clair River.—On the opening of navigation, St. Clair Flats canal east pierhead light was discontinued, and the east channel gas buoy 4 was established in lieu thereof; light, occulting red every 10 seconds, at an elevation of 13 ft., in a depth of water of 22 ft. The east channel revetment will be dredged away at this point.

Hill & Co. (Exports & Imports) Ltd., has been incorporated under the Ontario Companies Act, with $200,000 authorized capital and office at Toronto, to carry on a general import and export business in Canada, for British, colonial and foreign commercial houses, and to conduct a navigation, transportation and warehousing and grain elevating business, and in connection therewith, to own and operate steam and other ships, warehouses, wharves, docks and elevators. The provisional directors are: E. N. Armour, D. C. Skinner, N. F. Allan, H. R. Hollinshead and I. R. McKibbin.

Harbour Navigation Co. Ltd., has been incorporated under the British Columbia Companies Act, with $100,000 capital, and office at Vancouver, to own and operate steam and sailing ships of every description and to carry on a general shipping and forwarding business.

Harbor, River and Drydock Estimates for 1920-1921.

The Public Works Department's estimates for the year ending Mar. 31, 1921, submitted to the House of Commons recently, contain the following items:—

Harbors and Rivers, Chargeable to Capital

Esquimalt, B.C., new dry dock, which includes a revote of $450,000, being unexpended balance of the 1919-1920 appropriation	$500,000
Port Arthur and Fort William, harbor and river improvements, including revote of $180,000	600,000
Quebec Harbor, Champlain dry dock, to complete, including revote of $67,000	150,000
St. John Harbor, improvement	1,250,000
Toronto Harbor, improvements	1,700,000
Toronto Island, breakwater protection, revote	200,000
	$4,400,000

Harbors and Rivers, Chargeable to Income.

NOVA SCOTIA.

Arisaig, repairs to wharf	$ 1,500
Battery Point, repairs to breakwater	1,000
Boisdale, wharf	2,600
Bayfield, repairs to breakwater	1,200
Cow Bay (Port Morien), repairs to breakwater	6,000
D'Escousse, repairs to wharf	720
Devil's Island, repairs to breakwater	13,300
Digby, repairs to pier	5,000
Drum Head, repairs to breakwater	2,500
East Jordan, repairs to breakwater	600
Eatonville, repairing and rebuilding breakwaters	3,500
Friar's Head, harbor improvements	3,800
Granville Centre, repairs to wharf approach	1,000
Harbors and rivers generally, repairs and improvements	60,000
Harborville, repairs to breakwaters	800
Irish Cove, wharf reconstruction	2,800
Inverness, harbor improvements	12,000
Johnston's harbor, repairs to wharf	500
Larry's River, repairs to breakwater	3,000
Little Brook, repairs to breakwater	1,500
Mabou Harbor, repairs to jetties	1,600
Meteghan, breakwater extension	16,500
McNair's Cove, repairs to wharf	1,200
Mosher's Bay, repairs and improvements to breakwater	6,650
Newport Landing, repairs to wharf	1,600
New Harbor, repairs to breakwater	2,000
North Ingonish, reconstruction of breakwater	11,000
Owl's Head, repairs to wharf	3,400
Pleasant Harbor, repairs to wharf	1,500
Portapique, repairs to wharf	600
Port Beckerton, repairs to wharf	700
Port George, repairs to wharf and breakwater	1,800
Port Hawkesbury, to complete repairs to wharf	3,400
Port Hood, wharf repairs and extension	7,000
Scotch Cove (White Point), breakwater extension	9,800
Shenacadie, wharf	12,000
Sober Island, extension to wharf	6,000
South Lake, Lakevale, repairs to piers	1,025
Spry Bay, Josie's, repair to wharf	2,500
Summerville, repairs to wharf	5,900
Sydney, wharf	100,000
Tennycape, repairs to wharf	1,200
The Wharves, repairs to breakwater and shore protection	800
Three Fathom Harbor, repairs to breakwater	6,000
The Points West Bay, repairs to wharf	1,500
Vogler's Cove, repairs to wharf	900
West Chezzetcook, repairs to breakwater	15,100
Westport, repairs to wharf	4,000
Yarmouth Bar, repairs and improvements	4,000
	$352,995

PRINCE EDWARD ISLAND.

Annandale, repairs to wharf	$ 3,500
Cape Traverse, repairs to pier	2,500
Graham's Pond, repairs to breakwater	1,500
Harbors and rivers generally, repairs and improvements	14,000
Hickey's Wharf, repairs and reconstruction	3,500
Miminigash Harbor, reconstruction of breakwater	2,700
North Lake, boat harbor	27,000
Pinette, reconstructing ice break	1,200
Souris, to repair and strengthen breakwater	40,000
St. Mary's Bay, repairs to wharf	1,100
St. Peter's Bay, repairs to breakwater	2,800
Victoria, repairs to pier	2,900
West Point, repairs to wharf	1,600
Wood Islands, repairs to breakwaters	800
	$105,100

NEW BRUNSWICK.

Bay du Vin, repairs to wharf	$ 2,400
Buctouche, repairs to wharf	1,300
Campbellton, repairs to wharf	2,000
Campbellton, repairs to ferry landing	1,500
Cape Bald, repairs to breakwater pier	10,000
Chockfish, to repair breakwater	1,400
Cocagne repairs to wharf	1,700
Dalhousie, repairs to wharf and breakwater	700
Harbors and rivers generally, repairs and improvements	65,000
Loggieville, repairs to wharf	1,200
Mill Cove, repairs to wharf	750
Moncton, repairs to wharf	2,800
Negro Point, breakwater repairs	5,500
New Mills, repairs to wharf	900
North Head, Grand Manan Island, repairs to breakwater wharf	5,225
Petit Rocher, repairs to breakwater	15,000
Quaco (St. Martin's), reconstruction of breakwater and repairs to pier	22,000
Seal Cove, repairs to breakwater	2,700
Shippigan Gully, repairs to breakwater	12,000
Stonehaven, repairs to breakwater	1,500
St. George's, repairs to wharf	5,000
St. Louis, repairs to wharf	1,200
Tracadie, repairs to wharf	2,000
Wilson's Beach, repairs and improvements to breakwater-wharf	8,700
	$172,525

QUEBEC.

Anse aux Gascons, wharf	$ 36,000
Aylmer, repairs to wharf	2,000
Beloeil, repairs to protection piers	7,700
Berthier (en bas), repairs to wharf	3,000
Buckingham, wharf	8,000
Cabano, repairs to wharf	2,400
Cap St. Ignace, repairs to wharf	6,000
Caughnawaga, repairs to wharf	2,500
Chicoutimi, repairs to wharf	4,500
Contrecoeur, repairs to wharf approch	3,000
Coteau du Lac, repairs to wharf	1,100
Esquimalt Point, wharf repairs	1,700
Fasset, repairs to wharf	650
Gaspe Basin, wharf repairs	4,150
Grande Riviere, repairs to pier	12,900
Grosse Isle Quarantine Station, extension of wharves	50,000
Grosse Isle, repairs to wharfs	5,500
Harbors and rivers generally, repairs and improvements	75,000
Ile Perrot, wharf repairs and improvements	2,300
Louiseville, repairs to wharf	1,000
Maguasha, repairs to wharf	600
Mont Louis, repairs to wharf	1,250
Montmagny, repairs to wharf	4,400
Nicolet, repairs to wharf	600
North Timiskaming, wharf	13,000
Notre Dame des Sept Douleurs (Isle Verte), completion of landing wharf	5,000
Pointe aux Trembles, repairs to wharf	6,000
Pointe Pizeau, Sillery, repairs to wharf	13,000
Pointe Shea, Amherst, repairs to pier	10,000
Poltimore, wharf	3,000
Port Daniel, repairs to wharf	1,000
Quebec Harbor, River St. Charles, repairs to plant	15,000
Rimouski, harbor improvements	13,000
Riviere du Loup (en bas), repairs to wharf	3,800
Riviere Ouelle, repairs to wharf	1,200
Ruisseau Le Blanc, repairs to wharf	600
St. Alphonse, repairs to wharf	5,000
Ste. Anne de Beaupre, wharf repairs and reconstruction	30,000
Ste. Anne de Sorel, repairs to wharf	2,500
St. Denis, repairs to wharf	1,300
St Famille, wharf repairs and reconstruction	17,000
St. Francois Sud, repairs to wharf	33,000
St. Jean d'Orleans, repairs to wharf	31,000
St. Johns, renewal of booms	1,400
St. Joseph de Sorel, reconstruction of ice breaker	3,500
St. Laurent, Island of Orleans, repairs to wharf	21,000
St. Michel de Bellechasse, repairs to wharf	36,000
St. Paul, Isle aux Noix, repairs to wharf	3,000
Sorel, wharf repairs and reconstruction	10,400
Three Rivers, repairs to coal dock	3,450
	$519,400

ONTARIO.

Bayfield, repairs to pier	$ 6,000
Belle River, repairs to harbor walls	1,700
Blind River, repairs to wharf	2,000
Burks Falls, repairs to wharf	5,000
Burlington Channel, repairs to pier	17,000
Cobourg, repairs to piers	13,000
Collingwood, breakwater reconstruction	50,000
Depot Harbor, wharf renewal	36,000
French River dams, repairs and maintenance	3,000
Goderich, repairs to docks	3,500
Grand Bend, repairs to piers	2,300
Haileybury, repairs to wharves	1,000
Harbors and rivers generally, repairs and improvements	65,000
Kagawong, wharf	12,000
Kenora, extending wharf	2,500
Kincardine Harbor, contribution to municipality towards protection of government piers	1,050
Kingston, maintenance and operation of combined wharves and bridge	12,800
Kingston, repairs to R.M.C. dock	850
Kingsville, repairs and renewals to piers	8,000
Leamington, repairs to pier	9,200
Little Current, rebuilding wharf	44,000
Liskeard, repairs to wharf	850
North Bay, repairs to wharf	800
Oshawa, repairs to wharf	15,000
Parry Sound, renewals to breastworks at Two and Seven Mile Narrows	1,500
Parry Sound, repairs to wharves	7,000
Pelee Island, repairs to piers	2,750
Pike Creek, repairs to harbor walls	1,200
Port Burwell, repairs to pier	7,900
Port Colborne, repairs to breakwaters	66,500
Port Rowan, repairs to pier	1,500
Port Stanley, repairs to harbor works	19,000
Puce, repairs to harbor works	800
Rondeau, repairs to piers	17,000
Silver Centre, repairs to wharf	825
Sault Ste. Marie, repairs to wharf	6,180
Southampton, repairs to breakwater	5,000
Thessalon, to complete reconstruction of wharf	13,500
Wheatley, repairs to pier	2,100
	$465,305

MANITOBA.

Dauphin River, wharf	$ 7,500
Gimli, repairs to wharf	3,000
Harbors and rivers kgenerally, repairs and improvements	15,000
Red River, repairs to channel protection work	7,500
Selkirk, repairs to wharf	3,000
	$36,000

SASKATCHEWAN AND ALBERTA.

Harbors and rivers generally, repairs and improvements	$ 20,000

BRITISH COLUMBIA.

Bamfield, repairs to wharf	$ 2,680
Boswell, floating wharf	6,500
Clayoquot, repairs to wharf	2,200
Crofton, repairs to wharf	4,100
Fraser River, improvements at Nicomen Island	36,000
Fraser River (lower), improvements	25,000
Fraser River, dredging North Arm	32,000
Harbors and rivers generally, repairs and improvements	95,000
Kincloth, wharf renewal	11,000
Naas River, removal of obstructions	10,000
Naramata, wharf	3,000
New Westminster, repairs to wharf	850
Nootka Island, repairs to wharf	3,000
Okanagan River, maintaining dam and repairing bank protection work	3,400
Port Moody, repairs to wharf	800
Powell River, addition to wharf	11,000
Prince Rupert, quarantine station, repairs to wharf	3,500
Princess Creek, floating wharf	6,500
Refuge Bay, repairs to wharf	4,000
Robert's Creek, repairs to wharf	980
Royston, repairs to wharf	4,000
Spiller River, repairs to wharf	2,000
Stewart, reconstruction of wharf	29,000
Stikine River, removal of obstruction	10,000
Thetis Island, reconstruction of wharf	8,500
Ucluelet, repairs to wharf	3,420
Williams Head, quarantine station, repairs to coal wharf	5,480
	$323,910

GENERALLY.

Harbors and rivers generally	$ 30,000

DREDGING.

Maritime Provinces	$500,000
Ontario and Quebec	450,000
Manitoba, Saskatchewan and Alberta	75,000
British Columbia	400,000
	$1,425,000

Drydocks, locks, dams, etc., working expenses, chargeable to collection of revenue.

Champlain graving dock	$20,000
Lorne graving dock	27,300
Esquimalt graving dock	22,000
	$69,300
	$ 3,000
East River, lock and dam	5,800
Burlington channel bridge	3,000
Montreal River, dam at Latchford	900
River Yamaska, lock and dam	2,500
Riviere du Lievre, lock and dam	22,700
St. Andrews Rapids, lock and dam	4,200
Selkirk, repair slip	
	$42,100
Collection of Public Works revenue	$7,000